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THE ETIOLOGY OF CHRONIC ATROPHIC RHINITIS.*

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For twenty years I have maintained and still maintain that atrophic rhinitis is a development from the purulent rhinitis of childhood. There is not a single clinical case on record that justified the assertion that atrophic rhinitis ever follows hypertrophy of the mucous membrane. In early life it is the epithelial structures which are especially involved in a tendency to catarrhal inflammation of the mucous membrane. The result is an increase of the secretion, together with an exaggerated proliferation of the epithelial cells. This results in a discharge of mucus, containing young and unripe epithelial cells, constituting a muco-purulent discharge. This process gradually extending into the follicular structures and into the racemose glands, these glands eventually becoming denuded of these epithelial cells, collapse and disappear. The result is that the secreting surface of the mucous membrane is to a certain extent destroyed. The secretion in time becomes inspissated, and dries readily into crusts. These dried crusts interfere markedly with the flow of blood in the mucous membrane. The resulting contraction of the mucous membrane causes an interference with the respiratory function of the nose. Not only is the whole thick-

* Remarks made at the meeting of the Laryngological Section of the New York Academy of Medicine, March 28, 1900.

ness of the mucous membrane involved, but the turbinated bodies and, sooner or later, the periosteum, and then follows atrophy of the turbinated bones. The muco-purulent secretion of the nose, when dried, is not easily expelled, and its retention and consequent decomposition readily explains the stench observed in such cases. The disease, therefore, is essentially one of childhood, and after six or seven years it advances sufficiently far to cause the formation of crusts and produces a stench. These cases are comparatively rare—about one case for every forty of the hypertrophic variety. He had never seen but one case of fully developed atrophic rhinitis cured, although they sometimes improved spontaneously at about the age of forty.

The sequence of pathological changes in the tissue would seem to be easily comprehended, but the question as to why the initial change should set in is not easily answered. In a certain proportion of cases of the disease which I have seen in its early stages there was notable evidence of mal-nutrition, but it could not be traced in any instance to syphilis, tuberculosis, scrofula, lymphatism or any of the constitutional dyscrasia.

SOME RECENT CONTRIBUTIONS TO THE STUDY OF THE ETIOLOGY AND PATHOLOGY OF ATROPHIC RHINITIS.*

JONATHAN WRIGHT, M.D., BROOKLYN.

Two papers dealing with statistics obtained by measurements of the skulls of patients in and near Basel, in Switzerland, have lately appeared in the same number of the *Archiv für Laryngologie*, Bd. 8, Heft 3. While they both present appalling examples of sesquipedalic terminology they also contain valuable information in regard to certain puzzling problems in rhinology. I refer to "Hypsistaphylie und Leptoprosopie," by A. Grossheintz, and to "Chamæ-prosopie, ein Etiologisches Moment für Manifeste Ozena," by B. Meisser. It is always discouraging to the reader to have to hunt up a Greek lexicon before beginning to read a thesis, so it may be well to explain that these are terms in anthropometry —hypsistaphylia meaning literally "high uvula," leptoprosopia meaning literally "narrow face" (or, primarily, a delicate face), and chamæ-prosopia meaning "low face," *i. e.*, broad face.

It has been stated by many writers, and it seems to be the general impression among rhinologists, that the high palatal arch and the long, narrow face are directly connected either as cause or effect with the occurrence in children of naso-pharyngeal lymphoid hypertrophy. Some years ago E. Fränkel *(Inaug. Dissert. Basel,* 1896), by careful measurements, came to the conclusion that this was not the case, this configuration of the jaw occurring no more frequently in those who have than in those who have not post-nasal hypertrophy. The paper of Grossheintz fully supports this view. Indeed Lange has stated, and it has been my experience, that cases of a very high, narrow palatal arch are not infrequently seen without a trace of adenoids. According to Grossheintz, the existence of this condition depends upon the type of the skull, whether, in other words, it is dolicho-cephalic or brachio-cephalic. The deductions which he makes from his exhaustive and somewhat exhausting observations are as follows:

"1. With high, narrow alveolar arch (hypsistaphylia) is usually associated a general narrowing of the upper face (leptoprosopia).

"2. Narrow nasal passages (leptorrhinia) and narrow orbits belong, as a rule, to the skull formation having high arched palates.

"3. Hypsistaphylia depends, as a rule, upon the congenital racial characteristics of the skull, and not upon the later extra-uterine influences of nasal stenosis."

*Read before the Laryngological Section of the N. Y. Academy of Medicine, March, 1900.

While it seems to be very evident that "adenoids," as the cause of narrow jaws, has been a subject in which very erroneous views have prevailed, I am not convinced that the narrow jaw does not have some etiological influence upon the occurrence of lymphoid hypertrophy in the pharyngeal vault. We may presume, at least, that adenoids, occurring in such subjects, are very much more apt to produce symptoms, especially of obstruction, and thus more frequently come under the observation of the physician than do those of the brachio-cephalic type, but even this assumption should not be too absolutely entertained.

In the study of the etiology of atrophic rhinitis, nothing can be more important than to keep constantly in mind the many theories which have been urged with great enthusiasm by their several authors. We have a long list to choose from. They are certainly not all correct, yet some of them may be found to be approximately so if a true explanation is ever arrived at. Perhaps it may be useful to simply enumerate the better known of them, most of them being mentioned by Meisser in the paper above referred to in connection with his name.

We remember that it is claimed by different observers that the disease begins:

As an hypertrophy.
As an atrophy.
As a purulent rhinitis. (Bosworth.)
As a bone disease. (Cholewa and Cordes.)
Its causes have been given as:

1. Mechanical.

(a). Nasal passages abnormally wide to begin with. (Fränkel, Zaufal, Meisser and others.)

(b). Congenital narrowness of the nasal fossæ. (Sauvage, Tillot).

(c). Shortness of the nasal fossa. (Hopmann.)

2. Bacterial.

(a). Löwenberg-Abel bacillus.

(b). Pes-Gradenigo bacillus.

(c). Pseudo-diphtheria bacillus. (Belfanti, Vedova.)

3. Neuropathic. (Bayer, Woakes.)

4. Accessory sinus disease. (Michel, Grünwald.)

5. Constitutional discrasia. (Hutchinson, Meisser and others.)

6. Epithelial metaplasia. (Meisser, Gerber.)

It would seem that human ingenuity could no further go. It is needless to say that vital objections may be urged against some of these theories, while it is also plain that it is possible for several of the etiological factors mentioned to coexist and that it is necessary for some of them to be considered as interdependent.

Meisser's work is taken up not with the invention of any new hypothesis, but in the support which he gives to those of Zaufal, Fränkel, Cholewa and others, who trace an etiological connection between the form of the skull and nasal passages and atrophic rhinitis. The earlier writers, in their anthropometric investigations, had adopted rather unsatisfactory methods of measurement and comparison, as, for instance, in obtaining the facial index they measured from the hair line to the point of the chin. Meisser bases his evidence on more modern and accurate methods. The index of the upper face he obtains by measuring from the fronto-nasal suture to the alveolar border of the superior maxilla in order to get the length, and by measuring the distances between the malar eminence in order to get the breadth; then the length multiplied by 100 and divided by the breadth gives the index required. By a large number of such measurements he established the fact that in his part of the world (German Switzerland) fifty-four per cent of all people have an index thus obtained of fifty or less, and these he calls cases of chamæ-prosopia while 64 per cent the index is over 50, and these he calls cases of lepto-prosopia. After obtaining these data he proceeded to measure forty cases of atrophic rhinitis in the same way.

He found that thirty-nine of them, or ninety-seven and a half per cent, had an index of fifty or less (chamæ-prosopia), while only one, or two and a half per cent, ran over that figure in their facial index. In general, the smaller the index the larger the number of ozena cases found with it. He pursued his investigations in another direction. He found that when ozena was present only on one side, not only was there a metamorphosis of columnar epithelium into squamous on that side, but on the apparently sound side also in the region of the anterior end of the middle turbinated bone. This observation was made in two cases only, but it brought him to the conclusion, which certainly seems a most remarkable assumption from such meagre premises, "that the nasal epithelium in ozena has, as a rule, undergone metaplasia even in early youth or has existed at birth, but that the ozena only manifests itself when, in addition to this, chamæ-prosopia is also present."

From these two sets of observations, and from corroborating evidence in the work of other observers he draws the following conclusions:

"A. Rhinitis atrophica fetida, as a rule, is found only in those of the broad-faced type. (Index of upper face under fifty.)

"B. In unilateral ozena the epithelium of the apparently healthy narrow side, at least in the region of the middle turbinate, is also metamorphosed.

"C. For the advent of the clinical picture of rhinitis atrophica there must chiefly be at work two factors, viz.:

"1. Epithelial metamorphosis of the nasal mucous membrane.

"2. Chamæ-prosopia, *i. e.*, wide nasal fossæ.

"These factors bear no relation to one another, but, on the contrary, they are, apparently also the metaplasia, congenital; but where one of the two factors is lacking the characteristic clinical picture of ozena is also absent."

It cannot be denied that if we are to accept the facts brought forward by Meisser as indisputable we must also accept the deductions he makes.

As for the metaplasia of the epithelium, Meisser's investigations have apparently not been extensive enough to establish at all satisfactorily his statement of the congenital occurrence of flat-celled epithelium in the nose of certain individuals. From my own experience in the microscopical examination of the nasal mucous membrane I should be inclined to doubt very seriously if this is a frequent phenomenon. It is a fact, however, that the flat cells of the skin do extend for some distance over the mucous membrane adjacent to the vestibule. This I have frequently had occasion to observe in the region mentioned, but not very exactly defined by Meisser, *i. e.*, at the anterior end of the middle turbinated bone; but further back in the nose I have seen no indication of such a condition except in connection with long existing pathological processes. It must be borne in mind that the anterior end of the middle turbinated bone is not that part of the mucosa where the most marked atrophy is regularly observed. We know that the mucosa of the inferior turbinated region, as well as the bone beneath, is regularly the first locality where marked atrophy is observed.

He presents, however, very much better evidence of the coincidence, at least of wide nostrils and atrophic rhinitis. This demonstration is so striking as to make it impossible for us to disregard its etiological significance. Nevertheless this cannot be unhesitatingly

accepted from statistics gathered in a region where the brachio-cephalic index of skulls preponderates so markedly over the dolicho-cephalic as it does in Switzerland. (*Vid:* Ripley, "The Racial Geography of Europe.") Comparison with similar statistics from the Iberian peninsula, where the dolicho-cephalic index preponderates, might alter the evidence very materially. Moreover, the statements of Meisser, which corroborate in a very conclusive manner the statements of many former observers, do not necessarily prevent our acceptance of the validity of other etiological factors.

In a more recent number of *Fränkel's Archiv*, Bd. x, Heft 1, Gerber continues the discussion of this part of the question of atrophic rhinitis under the title of "Chamæ-prosopia and Hereditary Syphilis in Their Relation to Platyrrhinia and Ozena." It is well to note that by "ozena" the author means chronic atrophic rhinitis with ozena and not syphilitic ozena. He again brings forward the observations of Hopmann in regard to the relation of the septal measurements to those of the naso-pharynx, and the bearing of this comparison on the etiology of atrophic rhinitis. This paper of Hopmann's appeared in the first volume of the *Archiv*. In forty cases of atrophic rhinitis he measured the length of the septum and of the naso-pharynx. He reduced these measurements to the scale of 100 for comparison. The average length in the ozena cases was for the septum 70.9 and for the pharynx 29.1 on the scale. In sixty-one normal noses, or the noses of those not affected with ozena, the proportion was 77.45 and 22.55 respectively. Gerber repeated these observations in 100 cases of ozena and in an equal number of normal cases. Atrophic rhinitis cases showed 75.53 and 24.47, while non-atrophic rhinitis cases showed 78.63 and 21.37. It will be perceived that in Gerber's cases the difference is not so striking, and yet perhaps sufficient to be significant. Gerber then refers to the paper of Kaiser (*Wiener Klin. Rundschau*, 1897-99), and reviews at more length the above-mentioned paper of Meisser. He accepts the conclusions therein stated and unites them with his own observations, but is of the opinion that the short septum, occurring, as it does, in the type of platyrrhinia, stands in more direct etiological connection with ozena than does chamæ-prosopia, or the wide-jaw type, "and therefore," says he, "the links of the chain, when properly arranged in their order, should be called chamæ-prosopia, platyrrhinia, ozena." It would seem that he might with equal justice have placed a brachio-cephalic link before that of chamæ-prosopia. He claims that the platyrrhinia, or flat-nose type, is more common in women than in men. It is, of course, a matter of common observation that women

have less prominent noses, on the average, than do men; but that, of course, only applies, as regards the septum, to so much of it as projects beyond the face line. Whether that holds for the rest of the septum, or whether the brachio-cephalic and chamæ-prosopic type is more common in women, I am unable to determine from these papers. This is somewhat important, for certain it is that we cannot ignore sex in a consideration of the etiological factors of atrophic rhinitis. Gerber puts the proportion of its preponderance in women at about seventy-one per cent, but this seems to me rather below than above its average preponderance. Gerber is inclined to consider that syphilis and rachitis also, as well as Meisser's epithelial metaplasia, are frequently important factors. Referring to an opinion expressed by Fournier, that hereditary syphilis frequently produces a small, but not, on that account, a necessarily deformed nose, Jonathan Hutchinson, it will be remembered, went so far as to declare, many years ago, that inherited syphilis was an etiological factor in every case of atrophic rhinitis, but Gerber makes the necessary declaration that he does not, by any means, go so far as this, but that, although many cases have a syphilitic basis, by no means all of them do. He concludes thus:

"1. A true rhinitis atrophica fetida we will always find where there can be shown to exist a retarded development of the nasal frame work in combination with epithelial metaplasia and certain retrogressive processes (reduction-processen) of the mucous membrane.

"2. This retarded development of the nasal framework will, in the majority of the cases, be found in their natural connection with corresponding facial skull forms (chamæ-prosopia, platyrrhinia). In other cases it may be brought about through pathological processes, especially by hereditary syphilis.

"3. In exceptional cases the connection of epithelial metaplasia with wideness of the nasal chambers, due to other causes, may give rise to the condition of fetid atrophic rhinitis."

It will be noted in this review of recent work how completely we are leaving behind us the bacterial factors. They are sinking, as a great statesman has said, into "innocuous desuetude."

THE IMPORTANCE OF DISTINGUISHING FUNCTIONAL COLLAPSE OF THE NASAL TISSUES FROM ATROPHIC RHINITIS.*

BY CLARENCE C. RICE, M.D., NEW YORK.

The particular portion of the very large subject under discussion this evening, which has been assigned to me, has received too little attention. The importance of recognizing the fact that there are severe conditions of dryness of the mucous membrane of the nose and throat, associated sometimes with dry secretions, which are not properly termed cases of atrophic rhinitis or ozena, does not, I believe, need to be affirmed. The practical importance of this differentiation is two-fold, both from the standpoint of prognosis, which should with proper treatment be much more encouraging than in atrophic rhinitis; and, also, from the standpoint of therapeutics. The time was not long ago, when all conditions of dryness of the upper mucous membrane, associated as they usually are with some degree of *apparent* atrophy of the erectile tissues, were classified under the broad heading of "Atrophic Rhinitis. Perhaps no fault could have been found if we had been content to call many of them types of "dry" rhinitis, for we have learned that it is possible to find well-marked dryness of the nasal mucous surface, temporary or extending over a long period, where atrophy has not taken place. To the severe cases, made noticeable by the large amount of muco-purulent secretion, great atrophy of the nasal turbinates, foul odor of the breath, and the broad sunken nose, to these aggravated cases has the term "ozena" been applied. Such serious cases, with all their significant appearances and symptoms, are easy of diagnosis, although the etiological factors which produce them have been difficult to understand. It does not seem of vital importance whether they be termed serious and advanced cases of atrophic rhinitis, or ozena, or whether these two terms cannot frequently be used synonymously. It has always seemed to me that the most advanced cases, having the most aggravated symptoms, differ from those of moderate severity, not in type, but only in degree, and that perhaps an exhaustive study into the hereditary acquirement of the patient, and his whole history from birth, not only as he has been influenced by disease, but by all the conditions of life which have been peculiar to him, would go far towards explaining why in this

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particular patient an atrophic rhinitis had manifested itself in that most aggravated form to which the name "ozena" is applied. It seems to me that in studying the etiology of a marked case of atrophic rhinitis we must conclude that ***hereditary*** acquisitions, and influences in the ***earliest years of life*** are the most important. Constitutional conditions as subtle as those manifesting themselves in scrofula and congenital syphilis, may be the determining cause of an atrophic condition of the nasal tissues. But this is not my part of the subject, and we have mentioned the atrophic and ozenic class only for the purpose of contrasting them with the large number of cases of simple dryness of the nasal mucous membrane with little or no atrophy, which come to our notice. Can they all be placed under one heading, or do they belong to different types? We have all constantly seen these latter cases, most frequently in dispensary practice, in whom the simple dryness of the nose and throat, accompanied by small collections of secretion, and scarcely any atrophy of the bony structures, where this all seemed such a natural accompaniment to the general condition of the patient that it was difficult to believe that this dryness was due primarily to any local nasal inflammatory process, but it was, rather, simply only one of the many results of a general malnutrition, due to inadequate food, bad air, and the result of a life spent amidst most unsanitary conditions.

The term "Vascular Collapse" used by McDonald, page 68, to describe the nasal condition of the anemic type of cases is perhaps too narrow in its significance. It requires a term of broader meaning to describe the thorough malnutrition of the nasal erectile tissues and also call attention to the fact that this local condition is but one of the symptoms of a general malnutrition.

In considering all the possible causes which would tend to produce this condition which we are calling "functional collapse" of the erectile tissues, we can reasonably say that exactly the ***opposite*** influences from those which produce vascular tumefaction must be present. If vascular tumefaction occurs in well-nourished people, with enough or more than sufficient blood supply for all the organs, producing a tendency to nasal obstruction and consequently a decrease of intranasal air pressure, then collapse may be naturally looked for in anemic, poorly-nourished persons. The primary anemia in the nasal circulation produces a degree of shrinkage, the nostrils are abnormally wide, the air pressure is increased and a temporary collapse is thus rendered more or less permanent.

We have heard it suggested that vascular collapse may be of rheumatic or gouty origin, but we have not been able to trace such influence.

Before mentioning the differential points of diagnosis between the dry rhinitis of functional collapse and atrophic rhinitis, we want to briefly refer to another variety of dry rhinitis. McDonald, in his very satisfactory treatise, page 135, describes the dry rhinitis which exists in fat, phlegmatic people, especially in men who use alcohol to excess. It is true a marked dryness of the nose and throat does sometimes exist in this class of people and the cause seems to be well understood. The most important influence, not considering for the moment the congestion produced by constant alcoholic stimulation, is mouth-breathing, which seems to be a necessity in stout people whose middle pharynges have become so diminished in size that there is but small space for air to pass up and down behind the uvula. This, with the constant hyperemia, due to alcohol and tobacco, oftentimes produces hypertrophy, and perhaps as often so thoroughly interferes with the physiological function of the erectile tissues of the nose that it causes a general dryness, which perhaps may be called a "dry," but not an atrophic, rhinitis. This dryness is quickly diminished by discontinuing alcohol, and, if possible, by reducing the weight of the patient.

To return to our subject of the comparison of functional collapse with atrophic rhinitis; we cannot fail to have observed the great difference in the symptoms and appearances on the one hand in the dry nasal passages of an anemic girl who works at a sewing machine in a factory, and the nasal passages of a tailor who spends his life in the shop, and, on the other hand, the catarrhal condition of a young adult who is unmistakably suffering from advanced atrophic rhinitis. There are many points of difference between the simple dryness of anemia and malnutrition and that unique disease which is properly termed atrophic rhinitis.

We presume that it would be difficult to differentiate certain of these cases of functional inactivity of the nasal tissues from the mildest forms of atrophic rhinitis; for, in some instances, it is quite possible that the atrophic process has hardly advanced farther than the stage of complete contraction of the soft tissues. But in most cases well-marked points of contrast may be observed. The following are some of the differential features: Functional collapse is not often seen before young adult life, when the effects of continued malnutrition commence to be noticeable, while atrophic rhinitis may be observed frequently in children at the age of ten. Collapse without atrophy we observe in the poorer classes, or at least in people living amidst bad hygienic conditions; true atrophy in people of any class. The appearance of anemia and general debility observed in collapse of tissue is not a necessary accompaniment of atrophic rhinitis. Sim-

ple dry rhinitis—if we may so call it—would as frequently occur in men as in women if they were in as bad general condition. The sunken nose and the widely-spread nostrils characteristic of advanced cases of atrophic rhinitis are not seen in simple dry tissue collapse. Studying the passages of the nostrils we find in the simple dry nose of anemia a mucous membrane of exactly the color we should expect to find from the general appearance of the patient, all shades of palor, but smooth, pressed down tightly upon the turbinated structures which, however, still retain their natural contour, while in the atrophic patient, if he is well nourished, the mucous membrane will show any color from that of an acute coryza to a dirty gray. The surface is granular and atrophy has destroyed, to some degree, the form of the inferior turbinated structures. There is also apt to be an abundant secretion of muco-pus and a collection of crusts in the nose in atrophic rhinitis, while there may be almost none and usually is very little secretion in a patient affected by functional collapse. I judge that Macdonald considers that the great difference in the amount of nasal secretion is the most significant differential point between vascular collapse and atrophic rhinitis.

We are apt to find in functional collapse collections of mucus in a moderate degree in the post-nasal space. I cannot say in which of the two diseases there is the greater dryness of the upper and middle pharynx. In atrophic rhinitis the degree of dryness of the pharynx differs very markedly from time to time, becoming somewhat moist during a sub-acute coryza, and lapsing back into great dryness when there is no acute outburst; but in functional collapse the pharynx, although it will not be as dry as in atrophic rhinitis, is never moist unless the general condition which produces this local trouble is improved. There is never the intensely disagreeable odor of ozena in simple dry rhinitis, although the breath may be unpleasant. In atrophic rhinitis there is a constant tendency to acute or subacute inflammatory outbursts, and the patient has much of the time the symptoms of an acute coryza, while in the dryness of the anemic person there seems to be little or no activity in whatever pathological change may be present. Acute coryzas seem to be rendered impossible by the impaired nerve and blood supply. Hyperplasia of the middle turbinated bone is considerably more marked in atrophic rhinitis than in vascular collapse. Why there is this tendency towards enlargement of the middle turbinated, with atrophy and collapse of all the remaining nasal tissues, is a point which has never been satisfactorily explained.

Observers very generally believe that vascular collapse very rarely eventuates into atrophic rhinitis.

These are perhaps not all of the differential points, but they will cover a portion of the subject.

I have said that the importance of recognizing the fact that dryness of the upper respiratory tract may be due not to atrophy, but to functional inactivity, and this of a temporary character and hence curable, was most important from a therapeutic standpoint. The treatment of these cases is clearly indicated so soon as we recognize that this is not so much a local pathological process as a constitutional disorder. If these patients could be sent into the country where they could lead out-of-door lives, their nasal mucous membranes would recover their integrity without local medication. Living in town, as they are obliged to, we must prescribe out-of-door exercise, better ventilated working and sleeping rooms, cleanliness in habit and dress, and proper food. Local nasal treatment, beyond washing and oiling, is seldom necessary, and anything like heroic treatment would be injurious.

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THE HYGIENIC AND GENERAL TREATMENT OF ATROPHIC RHINITIS.*

BY THOMAS R. FRENCH, M.D., BROOKLYN.

If by the word hygienic, as it applies to this subject, is meant the science which is concerned with the injurious effects of certain occupations, then I should have but few words to say, for little can be done for patients with atrophic catarrh caused by the fumes of chemicals in certain trades if the occupation is continued. If the word is to be defined as that which is good for the health, the whole subject of treatment would be mine for elaboration. As, however, the consideration of the electric, mechanical and drug treatment has been assigned to others, it might be presumed that the definition intended to apply to hygienic is that which remains to be said after all is spoken, on the principle of the miracle in the parable of the loaves and the fishes. With that in mind as the possible meaning of the word in this connection, I will endeavor to enlarge the crumb left over from this feast into a double proposition, namely: How to cleanse and how not to cleanse the nasal passages and naso-pharynx in atrophic rhinitis.

While there is a considerable divergence of opinion regarding the etiology and pathology of atrophic rhinitis there is a general uniformity of method, differing only in detail, which is now employed the world over for the control of this disease, or by which it can be made bearable. The two main indications in the treatment of all cases of atrophic rhinitis are local cleansing and stimulation and, when fœtor exists, a third indication is present, that of destroying the disagreeable odor. How best to cleanse the nasal cavities, how best to stimulate the sluggish glands, and what agents are best adapted to destroy the fœtor, represents all that is now sought for in the local treatment of the affection under consideration. The best results are unquestionably obtained in private practice, for the higher the patient is in the social scale the better he can, as a rule, be controlled, for the higher the degree of intelligence of the patient the greater his capacity for comprehending the need of treatment and, therefore, of responding to advice. In childhood comparatively little can be done, except with exceedingly tractable children, for enforced local treatment in childhood not only endangers the morale of the child, but is not likely to be thorough. In old age we can hope for nothing better than to contribute comfort, for there is no hope of reviving the activity of the glands. It is in youth and middle age that most

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can be accomplished. We all, no doubt, make use of the douche and post-nasal syringe in cleansing the nasal cavities and post-nasal space, and in the severe form of this disease nothing short of such means is capable of dislodging the hardened and tenacious secretions in the nose. The fairly normal naso-pharynx is far from being clean and it is difficult to conceive of anything more unclean than this locality in the fœtid form of atrophic rhinitis, but the ordinary syringe as now made may fall only a little short of the nose in this disease, in the matter of uncleanliness. From two unclean things it is as impossible to make one clean thing as it is to make a right from two wrongs. The leather plunger of the instrument is soaked in oil when the syringe is made and we have no knowledge that care is ever taken in preparing the oil, and even if care were taken the oil would soon become rancid and form an excellent breeding ground for micro-örganisms.

A few weeks ago I took from a drawer in the throat department of a dispensary in this city, one from a number of hard rubber post-nasal syringes in use in that clinic. It had probably been used several hundred times. To the eye, when taken from the drawer, it looked perfectly clean. The physicians who used it invariably cleansed it by drawing an antiseptic solution into it before and after its use upon a patient. The outside of the nozzle was always washed in water, which runs from the pipe in that room at a temperature of from 170° to 190°F. It, therefore, received what is supposed to be sufficient care and in a superficial way it was clean. I sent it to Dr. J. M. Van Cott, Professor of Pathology in the Long Island College Hospital, and asked him to see if it were possible to make cultures from scrapings from the inside of the barrel and curved tube and also from the leather plunger.

Dr. Van Cott's report of the result of his bacteriological examination of the interior of the syringe is as follows:

"After carefully sterilizing the outside of the nozzle I drew into the chamber of the syringe about two drachms of sterile bouillon and after a few minutes returned it to the test tube. In forty-eight hours the bouillon had broken down and emitted a mildly foul odor. It was then injected into the peritoneal cavity of a guinea pig under the usual regulations in laboratory practice, with the result that in eighteen hours the pig died. During the period between the inoculation and the death of the pig he was under constant observation and presented the typical respiratory and nervous phenomena of the septic condition. The autopsy revealed marked congestion at the point of inoculation, mild general peritoneal hyperæmia with localized disseminated peritonitis and considerable clear serum in the peritoneal cavity.

"Cultures from the serum and the right heart blood revealed a mixed growth of organisms which, morphologically, were identical. There were present a short bacillus and a micrococcus. The latter I am inclined to regard as the cause of the pig's demise.

"These findings seem to me to prove that this particular syringe contained pathogenic germs capable of killing guinea pigs and others of a saprophytic nature."

For many years I have had a suspicion that rubber and metal syringes with leather plungers were not clean and, as ordinarily constructed, could not be made clean. The hard rubber syringe cannot be boiled as boiling water will warp the barrel and cause the leather plunger to swell, and antiseptic solutions, if strong enough to destroy micro-örganisms, will soon destroy the leather plunger. The revelation made by the bacteriologist in the examination just described has proven that the ordinary syringe, as now made, is a menace to the health of the patient and should never be used. May we not hope that the day is not far distant when the same condition will be required of all syringes which is now required of the hypodermic syringe, that it can be readily and perfectly cleansed? As solid metal plungers make the instrument very heavy, I have had a post-nasal syringe made of thin metal and an asbestos plunger. This instrument can be boiled and is, therefore, a perfectly safe one to use if prepared by boiling.

In the milder cases of atrophic catarrh I much prefer that the patient should make use of a coarse spray in cleansing the nose. In such cases it answers the purpose as well as the douche, requires less fluid to affect the purpose and is less likely to occasion mischief in the middle ear.

I may, perhaps, be permitted a word here in regard to the preparation of the atomizer for use in this disease as well as all other diseases of the nose and throat. From the workshop to those who make use of them, atomizers are subject to a considerable degree of handling. Such instruments are not infrequently purchased, found wanting and returned to the retailer for exchange. Those instruments may, therefore, be infected. Before being put into operation by the patient an atomizer should be prepared as we prepare an instrument for operation—that is by boiling—and thus place it beyond doubt. If the bottle and stem are boiled five minutes and the hand bulb and rubber tube one minute, the possibility of conveying infection is removed. Atomizers with metal stems are alone capable of being subjected to this method of cleansing.

It is not necessary, nor is it desirable, in cleansing the nose, to use strong antiseptic solutions. The olfactory filaments are affected

sooner or later in all cases of atrophic catarrh, unless the disease is arrested, but the loss of function is only hastened by the employment of antiseptic solutions in cleansing the nasal cavities. Alkaline solutions are better borne, more serviceable and less harmful.

Next to cleansing, I presume that the treatment most commonly employed, both by the patient at his home and by the physician in his office, in this disease, is in the use of some medicated oily preparation injected into the nose and fauces by means of an atomizer. Such oily solutions unquestionably give vast comfort to the patient, but, unfortunately, prolonged and uninterrupted use of them is apt to hasten the course of the disease. First, because they aid in destroying the activity of the secreting glands by preventing proper evaporation; second, because they tend to choke and block the mouths of the glands themselves, and third, because they prevent, to some degree, the serum of the blood from reaching the current of air. Keeping the mucous membrane covered with an oil simply lubricates it; affecting only the comfort of the patient for the time being, but it is in no sense curative. Oils should be used, therefore, sparingly and, as a rule, intermittently and should be applied only after thorough cleansing of the nose with a saline wash, and that saline wash should be used before and after a spray of peroxide of hydrogen. This may be regarded as a cumbersome method of treatment for the patient, but it is, I believe, the ideal method in most cases. The use of oils may be omitted for several days at a time, in some cases, with beneficial results. It is difficult to sterilize an oil except by boiling, for microörganisms thrive in the air bubbles and escape destruction by the antiseptic agent incorporated in the oil. In answer to a question regarding the effect of boiling upon various drugs in oil the Benzoinal Company made a test and find that iodine, iodoform and aristol are decomposed by boiling. That carbolic acid, creosote, eucalyptol, menthol, camphor, thymol, salol and the oils of cubebs, pine needles and wintergreen are evaporated by repeated boiling. It is probable that very little evaporation occurs if the oil is boiled but once.

And now a word regarding the constitutional treatment of atrophic catarrh. This will, I fear, strain the time limit by a minute or two, but I promise to dispose of this part of the subject assigned to me in a very few words. Under this head the antitoxin treatment may properly be mentioned, for while it is used for its local effect, it acts by its effect upon the blood. This treatment was suggested by Belfanti and Della Vedoa in 1896, because of the belief that the bacillus found in secretions from atrophic rhinitis were an attenuated form of the diphtheritic bacillus. This method of treatment has had many strong advocates, but it has been abandoned by some of the

foremost among them and we have no encouraging statements upon which to base a belief in its efficacy. In a letter received from Mygind, of Copenhagen, a few days ago, he states, regarding the antitoxin treatment in atrophic rhinitis, that he considers it the most effective method we possess, but it has so many drawbacks that, for the present at least, he has been obliged to abandon it.

It is safe to say that one-fifth of the subjects of this disease are not in good health and, therefore, require constitutional treatment. When this affection is dependent upon a constitutional dyscrasia, such as tuberculosis or anæmia, or upon an inherited taint, local treatment, while very necessary, should occupy a secondary position, for its action will be but transient unless the constitutional condition is combated with every reasonable means for increasing body nourishment. The immediate effect of a change of climate upon the nasal symptoms is more marked at the seashore than inland, but it does not follow that a residence at the seashore will, in the long run, be more beneficial, especially if the dyscrasia is of a tuberculous character. A climate adapted to the constitutional condition is more important than one which agrees best with the local pathological condition. The prolonged administration of various tonics, such as iron, iodine, arsenic and cod liver oil will often be needed. In this class of cases I have at times employed inunctions of the various oils with most satisfactory results.

The subjects of atrophic catarrh, because of their susceptibility to acute inflammatory disorders of the mucous membrane of the upper respiratory tract, should live much out of doors and take daily baths in cold water followed by sharp frictions. They should, of course, be properly clad in suitable undergarments, but now that the material known as linen mesh is obtainable it does not follow that wool should be recommended. Those with whom I have spoken who wear this material for underwear, seem less liable to cold-catching than when they wore wool, probably because of the peculiar drying quality of the goods. The main, and so far as I know the only, disadvantage it has is its high price.

While atrophic rhinitis is often spoken of as the bane of rhinological practice we, nevertheless, have reason to congratulate ourselves upon the advance made in the method of treatment in the past fifteen or twenty years. In former times the subjects of the fœtid form of this affection were practically ostracised from society; their very presence was a pollution. To-day if they cannot always be cured the fœtid character of the secretions can be so controlled that others may not be aware of its presence.

THE MECHANICAL TREATMENT OF ATROPHIC RHINITIS.*

BY D. BRYSON DELAVAN, M.D., NEW YORK.

The question of the mechanical treatment of atrophic rhinitis as generally understood may be briefly referred to and quickly dismissed.

It may be made to include:

1. Treatment by mechanical means, such as tampons, plugs and bougies.

2. Removal of the diseased membrane by means of the curette.

3. Treatment by various forms of electricity.

1. In dealing with this subject three objects are to be kept in mind: First, the cleansing of the parts; secondly, prevention of the drying of the surface of the membrane and its secretions; and, thirdly, stimulation of the blood vessels of the mucous membrane and its underlying parts. The first necessity will be dealt with by another. The second has been met mechanically by Gottstein, who advocated the insertion into the affected nasal cavities of pledgets of non-absorbent cotton which, by their presence in the nose, modify the amount of air admitted and thus, probably, exert some influence in keeping the surface of the membrane moist. Certain authorities have suggested the use of medicated cotton, a decided improvement upon the original plan. Greville Macdonald advocates the employment of tampons for the purpose of reducing the barometric pressure in the nasal cavities, the patient being instructed to breathe through the nose for several hours a day, the passages meanwhile being partly obstructed by the cotton plugs. The result of this is a determination of blood to the surface, which materially benefits the case. In possible support of this idea is the case of an old man with atrophic rhinitis and a large polyp which partly obstructed and decidedly irritated the middle and lower part of the nasal cavity. As long as the polyp remained in place the patient was in comparative comfort, the membrane being moist and clean. Unfortunately this highly valuable and inoffensive visitor was discovered by the over-zealous owner of a Jarvis snare and promptly removed, to the great subsequent discomfort of the patient, whose atrophic symptoms speedily returned.

*Read before the Laryngological Section of the N. Y. Academy of Medicine, March, 1900.

2. Removal of the diseased membrane by means of a sharp curette may in some instances be justifiable. The cases in which this treatment is indicated are those where there are localized areas of tissue, partly hypertrophic and partly atrophic, generally located at the superior and posterior part of the nasal septum, which resist other attempts at treatment. Any extensive removal of the mucous membrane is, generally speaking, inadmissible.

3. The treatment of atrophic rhinitis by electrical means has been attempted in four widely different ways. The first of these, the galvano-cautery, may be classed with the curette, as applicable to a small proportion of cases and under conditions in general similar to those in which the curette is indicated.

The second electrical method is that of vibratory massage, which, in the opinion of some of its advocates, deserves a leading place among the remedies under discussion.

The third is the direct application to the nasal mucous membrane of the electrical current, either constant or interrupted. The fourth method is that of interstitial electrolysis. Both the second and third methods depend for their efficacy upon the stimulation which they impart to the dry and bloodless parts. They are productive of good results, sometimes in cases of severe character. They are objectionable, however, as requiring long continued, frequently repeated treatment, and as being both beyond the reach of the large majority of patients and beyond the time limitations of the active physician. Practically, for these reasons, they are not extensively used; they are valuable methods, however, and worthy of greater consideration than has ever been accorded them. Full descriptions of the above methods have been repeatedly published, so that it is not necessary to describe them within the limits of this short paper.

Turning now to another point of view of this subject, it appears from all that we see and read of the difficulties of dealing with this disease that its prevention is worth everything. In the clinical experience of the writer, atrophic rhinitis is much less common among certain classes of patients than it was a number of years ago. The explanation of this important observation lies in the fact that nasal diseases in general and obstructive conditions in particular are treated at present with promptness, skill and success. The mechanical removal of an enlarged third tonsil or of an obstructing septal deformity may easily play an all-important part in the subsequent healthfulness of the nasal membranes.

This is especially true in children who, suffering from enlarged adenoid tissue at the vault of the pharynx, have been relieved of it before an attack of diphtheria, scarlet fever, or other locally irritating exanthema, for it is a matter of frequent observation that atrophic rhinitis in children is often a sequel of one of these diseases, especially in cases where nasal breathing has been obstructed prior to the exanthematous attack.

Clearly, the so-called Thornwald's Disease is nothing more nor less than the result of neglected pharyngeal lymphoid hypertrophy. In like manner atrophic rhinitis frequently follows obstructive conditions of the nose.

It follows, therefore, that, in discussing the mechanical treatment of atrophic rhinitis, the influence of surgical measures for the removal of some of its principal causes should be remembered and that for its effective prevention obstructive conditions of the nasal and pharyngeal regions should be promptly recognized and relieved. Regarded from this point of view mechanical means as applied to atrophic rhinitis may assume an all-important role.

ATROPHIC RHINITIS; ITS TREATMENT BY LOCAL MEDICATION.*

BY CHAS. H. KNIGHT, M.D., NEW YORK.

The length of the list of remedies used in atrophic rhinitis is an indication of the desperate straits befallen the therapeutics of this obstinate condition. New detergents, new stimulants, new astringents, new antiseptics have followed each other only to be abandoned in disappointment, until a large proportion of practitioners have come to the conclusion that about all we can do is to "keep clean." While this rather pessimistic view is not wholly justified it must be admitted that certain cases are incurable. It is impossible to tell beforehand what results may be attained, and it has doubtless been the oecasional fortune of each one of us to witness amelioration in cases apparently hopeless. In other words, it is difficult to determine positively by superficial observation to what degree of degeneration the mucosa has advanced.

I wish to premise the few words I have to say concerning topical medication by reminding you with all possible emphasis that atrophic rhinitis is not a local disease to be relieved by the use of local remedies only. Whatever theory of etiology we may adopt—neurotic, inflammatory, or bacterial—we must recognize the fact that a vicious constitutional state, or diathesis, underlies the local condition and requires correction before we may hope to accomplish much by any course of local treatment. Syphilis, struma and alcoholism are perhaps the most frequent predisposing causes of intra-nasal atrophy. It is also seen in tuberculosis, in anemia and in various conditions of systemic depression. Success in the management of the nasal disease is dependent upon careful attention to hygiene and diet, and upon a rigid observance of the laws of health in general, as well as upon a regulation of the various affections and conditions more or less concerned in its etiology.

One of the most distressing symptoms often present in an atrophic rhinitis is ozena. This much misused term signifies a bad odor which is by no means pathognomonic of atrophy. It is met with in various other conditions, such as syphilis, malignant disease and in nasal obstruction from a foreign body, or from deformity or disease of the nasal fossæ. It is a symptom and in no sense a disease. The odor varies greatly in intensity at different times and it is much more pro-

*Read before the Laryngological Section of the N. Y. Academy of Medicine, March, 1900.

nounced in some individuals than others. It may be quite imperceptible to the patient himself owing to impairment of his sense of smell. It is not at all in proportion to the quantity of secretion or much influenced by its quality, since it is sometimes not marked when secretion is profuse; it often persists after the nasal chambers have been thoroughly cleansed. The latter fact would suggest the possible origin of the fetor in an accessory sinus from decomposing secretion retained in that situation. But in many cases it is possible to exclude sinus disease with certainty. Hence I am led to believe that in certain persons the secretions or the tissues themselves possess an inherent odoriferous tendency or character no satisfactory explanation of which can be given.

As to the comparative merits of powders and solutions for topical use in atrophic rhinitis there can be hardly a question. It seems quite unreasonable to ask a perverted secretion, such as is furnished by an atrophied mucous membrane, to make a solution for us which may be readily prepared outside the body. It is much better, therefore, to dissolve our powders beforehand, and if necessary, applications of the solution may be made often enough to keep up a persistent and prolonged effect.

No argument is needed to prove that any medication whatever of accumulated and decomposing secretion must be unavailing. In other words, preliminary and thorough cleansing of the mucous membrane is absolutely essential. For this purpose alkaline washes are usually recommended, but there is nothing to equal a normal salt solution. It is customary to direct our patients to put a teaspoonful of table salt in a pint of warm water and spray the solution into the nose with a coarse atomizer, or use a douche, or nasal syringe, or simply snuff the fluid into the nostrils from the hand. In many cases, especially at the beginning of treatment, the viscid and tenacious secretions cannot be dislodged in this way, but the mucous surface must be exposed by systematic brushing with sterilized cotton wound on the end of a nasal probe, the crusts and dried mucus having been first softened by the use of a coarse spray, or if they invade the rhinopharynx, as is often the case, by means of the post-nasal syringe.

The surfaces having been thus prepared, we are ready for the selection of a medicament.

At the present time I shall speak of only three or four drugs which have been found useful.

1. *Menthol.*—There is no drug that I should drop from my pharmacopeia with more reluctance. Whatever view we may hold of its antiseptic properties, there seems to be no doubt of its effect upon the

quality and quantity of secretion. The former improves and the latter diminishes. Very soon after beginning its use it will be observed that the secretions are loosened and discharged with greater ease. They become more fluid and less abundant. The solution should be as strong as the patient will tolerate. Usually a proportion of five grains to the ounce of fluid albolene is easily borne at the outset, the strength being increased as the treatment progresses. In rare instances the odor of menthol is objected to, and it sometimes causes a slight degree of nausea. It may be necessary to use a weaker solution or discontinue it altogether. The best vehicle is fluid albolene and the application is preferably made with an atomizer. In cold weather the solution may be slightly warmed, simply as a matter of convenience in spraying. As regards therapeutic effects, it seems to make no difference whether the solution be hot or cold, and it is a well-known fact that the temperature of a spray drops almost instantly on its formation even from a very hot fluid, so that, unless a solution is being used in bulk with a douche or syringe, previous warming is quite superfluous.

2. *Formaldehyde.*—This would seem to be an ideal remedy in atrophic rhinitis. It is a powerful antiseptic and deodorant, but at the same time a powerful irritant, and must be used cautiously in hyperesthetic cases. Good results may be obtained with a solution of one part in 5000. It may be used stronger, but frequently must be still further diluted. It should be applied at least twice a day at the beginning of treatment with an atomizer after cleansing with the salt solution. The necessary frequency of the applications precludes the preliminary use of cocaine for the purpose of anesthesia, and some patients will not submit to the pain it causes. There are several commercial preparations of formaldehyde—*formalin*, a forty per cent solution, *boroformalin*, to which is added boracic acid, and *borolyptol*, 1 part to 500 of formaldehyde, are among the best. The last should be diluted ten or fifteen times for use in the nose, and is claimed to retain its germicidal effectiveness when diluted even fifty times. With these preparations the ozena is modified, and in most cases may be completely dispelled. It is well to follow them by a spray of fluid albolene, or vaseline, in order to soothe and protect the surface and to correct the tendency to inspissation of mucus.

3. *Ichthyol.*—This drug has been used in a large number of cases and in many with a gratifying result. The well-known kerolineichthyol solution has been the preparation generally employed. It is a solution in petroleum and is furnished in a two per cent and a five per cent strength, the latter being preferred in bad cases. The only objection offered to it is its very unpleasant odor, but this is frequently

a matter of no consequence so far as the patient is concerned, and it is certainly less obnoxious than the stench of ozena.

4. *Gomenol.*—A fourth preparation seems to merit a little attention—gomenol—although my limited experience with it does not permit me to speak of it finally. It is a product of distillation of the leaves of "Melaleuca Viridiflora," a tree growing in New Caledonia. It is claimed that experiments made with it abroad show it to possess extraordinary antiseptic power. Moreover, it is absolutely non-toxic and unirritating. It has a peculiar, rather unpleasant, odor. It is provided in several forms for internal as well as external use. My experiments with it have been confined to the so-called "tubes of gomenol." The contents of one of these added to a quart of distilled water gives a solution 2½ parts in 1000. I have also used it in albolene five parts in a thousand. It may be made more agreeable by adding a drop or two of oil of wintergreen to each ounce and in the watery solutions I have generally put ten grains of bicarbonate of soda or boracic acid. It seems to be a promising preparation worthy of further trial.

The question of operative interference in these cases will often arise. It may be laid down as an absolute rule that no operation for removal of tissue should be undertaken in a case of atrophic rhinitis, except in the existence of a deformity or stenosis which interferes with nasal drainage, or forms a site for the lodgment of secretion. All our efforts should be directed toward preservation of tissue and restoration of function.

True ulceration seldom or never occurs, but superficial erosions are sometimes met which need no special attention, since they generally undergo repair as the secretions and membranes acquire a more healthy character.

The excessive volume of air admitted to a dilated atrophic naris, regarded by many as an important factor in causing and perpetuating the trouble, may be regulated by the use of a respirator, or by Macdonald's rubber tube device, or simply by wearing a film of absorbent cotton in the nostril, which may be tucked out of sight and which the patient himself may change at pleasure. The replacement of a septum, the deflection of which expands a nostril and favors atrophy of the soft parts, is sometimes indicated.

Thus it appears that atrophic rhinitis is a disease, or, perhaps, more properly the result of a disease, which must be attacked from various directions. No given line of treatment is adapted to every case, and the observance of certain rules with a neglect of precautions equally essential will surely result in failure. If the glandular elements have been

effaced by cirrhotic changes in the membrane, a sort of submucous cicatricial contraction, the prospect ot cure is not encouraging. On the other hand, if the process is recognized at its inception, we may hope to do much toward arresting it and restoring the function of the crippled structures.

In conclusion, I trust I may not be accused of undue levity in calling to your notice a most startling theory revived from antiquity by one of our colleagues in a distant city, the adoption of which would compel us to abandon all attempts to cure an atrophic rhinitis. Indeed it would be our duty to encourage and cultivate a tendency to intranasal atrophy. His views were recently published in one of our leading medical journals, from which I quote:

"It has been proven that the cribriform plate of the ethmoid is not impervious to oxygen; then is not æration possible between the nasal and cranial cavities through the cribriform plate? And is not the structure of this plate so wisely designed as to permit some circulation and consequent direct æration of the brain?

"This fact is so patent to me, both physiologically as well as pathologically, that we might speak of these plates as the ventilators of the brain, each ventilator acting for its respective hemisphere, inasmuch as the falx cerebri is attached to the crista galli, which divides the cribriform plate into two lateral halves. This view is at variance with the commonly accepted ideas of laryngologists and rhinologists, but appeals to me so strongly that I do not hesitate to express my views publicly."

Evidently the presence of normal mucous membrane in the nasal fossæ must be a distinct interference with the beneficent arrangement here described, and its disappearance by atrophy a providential dispensation which it behooves us not to intercept.

147 West Fifty-seventh Street.

REPORT OF A CASE OF HYSTERICAL DYSPNOEA.*

BY F. E. WAXHAM, M.D., DENVER, COLO.

I desire to report a case that to me was unique, having never in all my experience met with a similar case. I am convinced that such cases must be rare.

In the evening of January 1st I was called by a brother practitioner to see a girl, fifteen years old. I was urged to make all possible haste as the patient was choking to death, and it was feared that she could not live until my arrival. The attending physician informed me that he would certainly have done a tracheotomy while waiting for me, had he at hand any instruments whatever with which to have done the operation, as several times she seemed at the point of death.

She had been breathing with difficulty all day, but during the evening had become much worse. The symptoms were certainly most urgent. There was cyanosis, sinking in of the walls of the chest, loud stridor and the patient limp and apparently unconscious. Upon being shaken and aroused she was able to speak only in a whisper. There was no time to lose, as the patient seemed upon the very verge of fatal suffocation. She was placed in position for intubation and the finger introduced into the throat, followed by the tube. Just as the larynx was being engaged the girl gave a sudden spring, nearly out of the hands of the assistants, and the tube passed into the esophagus. I was astonished to hear the patient tell me in a clear loud voice that I hurt her. I was equally astonished to see the respiration perfectly normal, the loud stridor gone and the color returning to the face. All evidence of the former dyspnoea had entirely disappeared as by magic. The tube was withdrawn from the esophagus and she was directed to go back to the bed and behave herself, which she did with alacrity. She was sternly informed that the operation would be repeated if there should be any return of the trouble. It is needless to state that there was no recurrence of the attack and that the recovery was prompt and complete. It was subsequently learned that the patient, a few weeks previously, had seen a little friend and playmate, of whom she was very fond, die from suffocation resulting from laryngeal diphtheria. It was this fact that caused her hysteria to manifest itself as it did. While the diagnosis was poor, on account of the haste and the urgency of the symptoms, yet the treatment was the most effective that could have been administered.

* Reported to the Denver Pathological Society.

SIGMOID SINUS THROMBOSIS.*

BY JAMES F. M'KERNON, M.D., NEW YORK.

Aural Surgeon to the New York Eye and Ear Infirmary.

Seven cases; the first non-infective, recovery; six infective, five recoveries, one fatal, with remarks upon symptomatology and treatment.

Case I. Sigmoid Sinus Thrombosis (non-infective), following Mastoiditis, due to Middle-Ear Suppuration. Operation. Recovery.

As this case has already been reported in the transactions of the New York Eye and Ear Infirmary for 1897, but brief mention will be made of it in this report.

J. M., a German, aged seventeen, occupation cashier, was admitted to my service at the New York Eye and Ear Infirmary, October 28, 1896, giving the following history:

He had always been well until five weeks before, when he was awakened September 20th, at 3 a. m., with a sharp pain in the right ear, throbbing in character. He consulted a physician early in the morning, who ordered the instillation of ear-drops, composed of equal parts of camphor and ether. These he used at intervals of three hours for the next two days, the pain still continuing with headache and tenderness behind the ear. During the night of September 23d, after a severe paroxysm of pain, referred to the right ear and the mastoid region, the ear began discharging. The next morning he consulted his physician again, who ordered the canal syringed with a warm solution of boric acid every three hours. This was kept up during the day, the pain, headache and post-aural tenderness still continuing. At 11 o'clock that evening he was seized with a severe chill, high fever and vomiting. He sent for another physician, who applied a leech over the mastoid region, another in front of the tragus, and ordered an ice coil applied to the mastoid region, which was kept on continuously for seventy-two hours. Under this treatment the pain in the ear and over the mastoid gradually diminished, but the headache still persisted. The discharge from the ear at this time was yellow in color, with no odor. For five days after the coil was removed the canal was syringed every three hours with a warm boric acid solution, when the discharge became thin and watery and ceased

* Read in part at the Thirty-Second Annual Meeting of the American Otological Society held at New London, Conn., July 18, 1899.

altogether on the eighth day. At this time he complained of no symptoms, save headache on the right side and marked deafness. He now returned to his duties at the store and said that he felt perfectly well except a dull, heavy pain in the head, referred to the right side, and a slight deafness of the right ear.

October 25th, four weeks later, he contracted a severe cold by standing in a draught between two open doors, and that night the ear began to pain him and the next day it discharged a thick, yellow fluid quite freely. The pain in the ear continued all the next day, the discharge from the canal becoming thicker. In the evening there was severe pain behind the ear, in the region where it had been four weeks previously, and some soreness and swelling in the neck just below the ear; all the symptoms were increasing. On the evening of the second day he consulted his physician, who advised his coming to the infirmary for treatment.

October 28th, when he presented himself at the infirmary, his condition was briefly as follows:

Temperature 99.8°, pulse 90, respiration 24. Upon inspection of the ears there was found a thick discharge of yellow-greenish pus completely filling the canal of the right side. The canal was cleansed with bi-chloride 1-3000, and upon wiping it dry there was found to be considerable swelling all along the posterior and upper part, extending to the floor. There was a perforation in the lower half of the posterior superior quadrant, through which the thick discharge was inadequately drained. The tympanic membrane was bulging above and below this point. There was marked tenderness on pressure over the whole of the mastoid process, with well-marked tenderness and some swelling just below the lobe of the ear over the sterno-mastoid muscle. A free incision was made in the drum membrane, the patient put to bed, a Leiter coil applied and the ear syringed every three hours with bi-chloride 1-3000.

October 29th the coil was removed, having been on for twenty-four hours. The thick, yellowish-green discharge from the canal was very profuse, the mastoid still tender, and the swelling and tenderness in the neck about the same as on the day previous. The temperature was 99.6°, pulse 84, respiration 28. The patient rested easier and complained of less pain.

Next day, October 30th, the discharge from the canal was unchanged, with swelling of the superior and posterior walls of the canal more marked. Great tenderness over the whole mastoid area, with beginning edema around the post-aural fold, the swelling and tenderness over the sterno-mastoid muscle very marked, and extend-

ing from above downward. The slightest pressure in this region caused the patient to cry out with pain. Temperature was 99.6°, pulse 96, respiration 22.

An operation was decided upon, and the usual preparations made for opening the mastoid. The patient was etherized, and the usual mastoid incision made, extending through the periosteum to the bone, the soft parts retracted, and the mastoid exposed. The bone presented a dark and mottled appearance.

The antrum was opened, and about two drachms of thick, yellow pus, free from odor, was discharged. The pneumatic spaces were completely broken down, pus flowing freely from them. The spaces were curetted, the tip removed, and free communication established between the antrum and middle ear. The curetting was continued along the posterior wall of the antrum, which was found soft and necrotic. Continuing the curetting, the wall between the antrum and lateral sinus was broken down and removed, and the sinus exposed for one and a quarter inches. The dura covering the sinus presented a darker appearance than normal, and felt firm when pressed upon by the finger. The dura over the sinus was opened without any blood whatever flowing from it, and a firm, organized clot was found in the sinus cavity. So firm was this clot that it was extremely difficult to break it up with the curette. The curetting was continued downward toward the jugular bulb, a further portion of the sinus wall being removed to enable this to be done. The clot was firmly imbedded at the junction of the inferior petrosal with the lateral sinus, where they unite to form the jugular vein. It was removed with a small curette, the blood flow established from below, and the hemorrhage controlled by firm packing with iodoform gauze. The curetting was continued above until the torcular was reached. At this point the clot seemed more firmly imbedded than below, as the sinus was small and tortuous, and it was only after the persistent use of the curette, forceps and probe that the clot was removed, and the blood began to flow freely from above, showing that the circulation had been re-established. This hemorrhage was controlled by firm packing with iodoform gauze against the lumen of the vessel. The antrum, sinus and exposed surfaces were now thoroughly dried with cotton sponges wrung out of bi-chloride 1-1000, and packed with iodoform gauze, the external dressing being composed of sublimate gauze and cotton.

From this time the patient made an uninterrupted recovery. At no time was the temperature above 99°.

The day following the operation he complained of a slight headache and pain over the sterno-mastoid muscle, which gradually dis-

appeared in a couple of days. The first dressing was removed five days after the operation, and the wound found perfectly dry. When the gauze was removed from the jugular bulb and the torcular end of the sinus, hemorrhage was only slight and easily controlled by repacking. The day following the dressing the temperature dropped to 98.4°, where it remained until his discharge from the infirmary six days later, and fifteen days from the time of the operation.

It has not been possible to determine the temperature in this case at the onset, or previous to the first application of the ice coil, as the physician who treated him did not register his temperature, stating that at the time his fever was high, and followed soon after by profuse sweating. It is probable that infection of the sinus took place at the time of his chill, through the free venous communication existing between the mastoid cells and the sinus, and the continuous application of the ice coil for such a long period as seventy-two hours had much to do with the formation of such a firm clot and the subsidence of the acute symptoms, for that thrombosis does take place, followed by a spontaneous cure, we know, as cases have been reported in which the symptoms were undoubtedly those of a thrombus, as shown later by autopsies, where the sinus, as well as the internal jugular, had been obliterated. Koerner says that little or no systematic infection takes place where occlusion of the sinus is complete, as it was in this case, and this may explain the lack of certain symptoms at the time of the operation, as chill, rigor, temperature, vomiting, etc.

In all probability this case would have gone on to a complete recovery, even though the clot had been left intact, owing to its non-infective nature.

Case II. Thrombosis of Sigmoid Sinus, with Purulent Mastoiditis, following an Acute Otitis Media. Operation. Recovery.

A. K., girl aged three years, native of the United States, was brought to my office December 22, 1895, by her mother, who gave the following history:

Twelve days before the child had complained of pain in the left ear, which was soon followed by a discharge of what looked like a watery fluid. This discharge continued for five days and then stopped. During the time the ear was discharging the pain was lessened, although she cried each night from pain upon retiring. When the discharge almost entirely ceased, the pain became very severe, and she complained of headache and pain behind the ear. The usual old-fashioned family remedy had been used by the mother, viz., a flaxseed poultice over the whole of the side of the head, as

well as the ear, and the canal had been syringed three times a day with chamomile tea. This treatment she had continued constantly for one week. The day before the child was brought to me the mother said she had vomited several times, had a fever, was dull, would not eat and seemed sleepy.

Upon physical examination I found the child well developed for three years of age, though the skin was pale, and of a yellowish tinge. The left eye was partially closed and below the eye edema was present. The tongue was heavily furred and a foul odor was noticeable from the breath. While examining the child, she suddenly vomited, the material being dark green in color, with an unpleasant odor. The temperature taken by the rectum registered 105.3°F., the pulse was 146, respiration 48, heart and lungs negative, and a negative history throughout, except that of constipation from birth.

Examination of the ears disclosed on the left side a thin, watery discharge coming from the canal. Upon introducing a speculum, there was seen to be a contact of the superior and posterior canal walls, with the inferior wall. This prolapsed tissue was of a purplish tinge and rather dry, except the floor, where the discharge had lodged. The auricle stood out prominently from the side of the head, being pushed well forward by a large boggy swelling behind the ear. This swelling extended well up on the side of the head, and over the left temporal region, and as far back as to within an inch of the occipital protuberance. Directly behind the ear and over the mastoid and squamous portion of the temporal bone it was edematous and tender upon pressure. There was no tenderness below the mastoid tip, or over the course of the internal jugular vein.

The serious condition of the child was explained to the mother, and the speedy opening of the mastoid advised, which advice was accepted and an operation was done at the child's home four hours later.

Operation—Chloroform was administered, the usual curvilinear incision back of the auricle made, through the soft parts, extending to the bone and the tissues retracted, exposing the mastoid cortex, which was white and glistening.

The antrum was entered, a few drops of pus evacuated, the bone was found softened down to the tip, and all the necrosed mastoid was removed with the curette. The mastoid cavity was very narrow, and of a tortuous shape. Continuing the curetting along the sigmoid groove, a piece of bone was removed near the bend, bringing the sinus into view, which was situated far forward. The dura covering

the sinus was darker in color than normal, and a still further portion of it was exposed (that part situated below the knee). Pulsation was present. Just above the bend of the sinus there was a well defined line of demarkation, as the dura covering the sinus below this point was dark in color, almost black, while beyond this darkened area the dura looked white, glistening, and presented every visual evidence of being normal, and upon opening it, such proved to be the case. The field of operation was irrigated with bichloride and alcohol, preparatory to opening the sinus. Not having an aspirating needle present, an incision was made with a knife lengthwise through the dura, over the sinus, for about half an inch. This was followed by the escape of a few drops of yellowish-looking serum. The opening was enlarged for an inch and a quarter, and a curette passed into the upper portion of the opening, and a rather firm, dark-looking clot half an inch in length and about the size of an ordinary slate-pencil was removed. Hemorrhage at once followed the removal of this clot from the torcular end of the sinus. As the clot lay in the sinus it could be seen very distinctly that the line of demarkation, above spoken of, extended to within a few lines of the point where the dura had been excised, showing that the changes taking place in the dura corresponded to the extent of the clot formation. After controlling the blood flow above, by packing gauze against the vessel, the removal of the obstruction below was begun. Here the clot was partially broken down, and as the curetting was carried nearer the bulb, pus and soft grumous material were removed. It was with considerable difficulty that the return current was established below, as before any current was established a small wire curette and a probe were used for several minutes, and when the blood made its appearance it was not the rapid return current usually seen at this end of the sinus, but rather a slow oozing, increasing gradually in volume, leading me to think its source might be from the inferior petrosal sinus rather than from the internal jugular vein, but as the little patient's condition did not warrant any further delay at that time the wound was hastily cleansed, and a piece of iodoform gauze carried down the blub and firmly packed there. The usual dressing was applied, and the child placed in bed, and surrounded by hot water bottles.

During the last few minutes of the operation, active stimulation, with strychnine and whisky was given, and soon after placing the child in bed the pulse became very weak, respiration shallow, and it seemed as though the end of the little patient was near. Eight ounces of very warm water was hastily injected into the rectum, and was

immediately followed by satisfactory results, as both pulse and breathing quickly responded to this mode of stimulation.

I am unable to say what the temperature of the water injected was, as in the hurry we did not stop to take it, but am sure that it must at least have been close to 130°F., for it was exceedingly hot to the touch.

She came out from the anesthetic fairly well, but was very fretful for three hours afterward. Four hours after the operation her temperature was 102.1°F., pulse 140 and respiration 42.

Five hours later, and nine hours from the time of operation, I was hurriedly sent for, and, upon reaching the house, found the child moaning and tossing from side to side, presenting a picture very similar to that of meningitis.

The temperature was taken and found to be 106.3°F., by rectum. The pulse was rapid and could not be counted and the respirations were 56 per minute. The skin was hot and very much flushed.

Ice caps were applied over the whole of the head, and every twenty minutes an alcohol sponge over the entire body was given, and hypodermically strychnine, $^1/_{30}$ of a grain, and nitro-glycerine $^1/_{50}$ of a grain, alternating, one or the other every half hour. This treatment was continued for four hours before any marked benefit was noticed. At the end of this time the temperature had dropped a degree and a half, and the child was quieter and sleeping for a few moments at a time. The sponge baths were reduced to every hour, and the stimulation diminished to every two hours. Six hours later the temperature registered by rectum 102°F., pulse 140, respirations 31, and the patient was taking milk and resting quietly.

From that time on there was no complication. The temperature on the sixth day reached normal, and remained so throughout, save once or twice a few days later when it rose to 99.4°F., but quickly fell again.

The first dressing was removed seven days after the operation, and the edema of the side of the head, scalp and beneath the eye had disappeared. The wound was healthy, the packing in the bulb and over the proximal end of the sinus was left untouched until the second dressing, four days later, and when removed no hemorrhage took place.

At the present writing, the hearing on the side operated upon is, so far as can be ascertained, normal, as she hears equally well in both ears, after an interval of four years.

There are in connection with this case some points of extreme interest:

First—We have here as the result of an acute infectious otitis, involvement of the mastoid structure, which, of itself, is not unusual, but, in addition, we also have a septic infection of the sigmoid sinus, which some writers aver to be a rarity in a child so young. However, I think the fact of its occurring, is explainable. First, the grade of otitis, as shown by the history, makes me feel sure that the character of infection was that of the streptococcus, although a culture was not made. It is well known that where streptococci are present in the pus the infection is far more rapid than when they are absent, hence, if streptococci be present, whether in child or adult, there is far more likelihood of our finding the sinus involved than when they are absent, and when present there is every reason why they should find an easier pathway for entrance through the soft mastoid structures existing in a young child than in those of an adult. Also where the sinus lies well forward, and close to the mastoid antrum, as it did in this case, together with an extremely small mastoid, it becomes much easier, and infection will take less time than where the sinus lies well back or in its supposed normal position. So, I believe, the two principal causes for infection to be: First, the character of the poison, streptococci; and second, the nearness with which the sinus lies to the pus in the antrum, thus giving it a shorter distance for travel, and consequently a more rapid infection will follow.

Second—What was the cause of the sudden temperature rise, several hours after operation? Was it septic material, left at the bulb, which later entered the general circulation, thus causing a systemic poisoning, or was it a beginning meningitis, or secondary shock? I confess I am unable to solve it, although I do not believe it was a meningitis. Whatever it was it quickly subsided.

Third—Supposing we had a streptococcus infection present, as I believe, existed. Then this would account for the several days of temperature following the operation, for when such an infection exists, it has been my experience that we have a temperature of greater or less degrees, lasting several days, or until the poison has reached the point of elimination from the system.

Fourth—The probable cause of the extensive edema of the side of the head and temple was due no doubt to the energetic poulticing by the mother during the week preceding the operation.

The puffiness and edema around the eye was in all probability due to obstructed circulation in the cavernous sinus, or the ophthalmic veins or both, on the affected side.

Case III. Pyemic Sinus Thrombosis, Complicating Purulent Mastoiditis, with Epidural Abscess and Double Bezold Perforation, caused by Acute Otitis Media. Operation. Recovery.

T. D., aged twenty-four years, a native of Ireland, applied to the New York Eye and Ear Infirmary, August 9, 1897, for treatment, giving the following clinical history:

Had always been well up to five weeks before, when he experienced a sharp pain in the right ear, followed in a few hours by a discharge lasting two days.

Four days later, pain became very severe in the ear, and two days afterward he felt pain behind the ear, and it was sore when he pressed with his finger upon it. The pain and tenderness had continued without interruption. He had never had any previous ear trouble, and none of the diseases of childhood except measles, when ten years of age. For the past six days he had had intense headache, loss of appetite, vomiting, chills and fever and was very weak, scarcely able to walk. Two days before he had three chills, at intervals of about two hours. He was emaciated and had a pallid septic look, with tongue heavily furred in the center and dry and glazed at the edges. Upon examination of the ear, the canal of the right side was found occluded by contact of the superior and posterior walls extending to the meatus. There was no discharge present. The mastoid was tender and the tissues over it were swollen and edematous. There was a large boggy mass below the tip, extending to within two inches of the clavicle. This mass was about the size of a large goose egg, somewhat similar in shape and exceedingly tender upon pressure. A second mass was present about half the size of the first one and situated posterior to the tip in the occipital region. This mass was sharply defined and as far as one could judge, distinct from the one below the tip. This was also very tender upon pressure.

His temperature was 101.8°F., pulse 128 and respiration 32, and he said he felt chilly. A diagnosis was made of purulent mastoiditis, with Bezold perforation, and a possible thrombus. The patient was advised to have an operation at once, to which he consented.

The urine was examined and found to contain a trace of albumen and two hours later he was taken to the operating room.

Operation—Chloroform was administered, the usual curvilinear incision over the mastoid made, from the tip below to a point one inch above the zygoma. The soft parts were retracted and the bone was found dark and soft over the upper two-thirds of the mastoid cortex. The antrum was opened, and contained pus, creamy in

character, with no odor perceptible. Free communication was established through the aditus, with the middle ear. The cortex was removed, down to the tip and the cellular spaces were found all broken down, and contained pus, and a small amount of granulation tissue. After removing the tip and curetting all the softened bone away down to the inner table, a probe was passed downward for about three inches, through a perforation, close to the superior surface of the inner table. This opening was surrounded by necrotic and softened bone, and upon withdrawal of the probe, pus came up through the opening. An incision was made in the neck downward, directly over the center of the pear-shaped mass, for five inches. This incision was carried deeply and a large quantity of pus was evacuated. There were several enlarged glands found along the course of the incision, which were removed, as were also several glands that were found involved in the septic process lying on the sheath containing the carotid artery and internal jugular vein. It consumed several minutes to clear this space, as some of the glands were matted down and closely adherent to the sheath. In removing softened bone posterior and about three-fourths of an inch above the tip, the curette passed through necrotic bone into the soft tissues of the occipital region, through which pus made its appearance. An incision backward through the soft tissue in the occipital region served to evacuate this pus collection, which was considerably smaller than the one below the tip. Another area of softened bone was found above the knee of the sigmoid sinus, and in using the probe carefully here for fear of wounding the sinus, pus was seen to exude where the probe had passed through the softened bone. This necrotic bone was removed with a rongeur and a collection of pus of the same creamy character as that in the antrum and mastoid cells was removed. Altogether it was estimated to have been three drachms in quantity.

The base of this epidural pus collection was formed by that portion of the sinus wall lying above the knee for about one and a half inches, and the dura posterior to the sinus, so that altogether there was an area about one and a half inches long and about an inch in width of exposed dura. That portion of the dura over the sinus was darker in color than usual and quite thickly covered with plastic lymph and granulations. The portion posterior to the sinus was lighter in color and there was only here and there a granulation over it. All the dead bone was carefully removed by the use of the rongeur and curette, so that practically what is known as the sigmoid groove was taken away and the sinus uncovered for two and a half inches. As soon as the sinus was uncovered there was a marked

difference noticeable in its prominence. The lower two-thirds, including the knee, was less prominent than the upper part. That is, the upper, as compared with the lower part, seemed to bulge outward, while the lower part seemed flatter. Upon placing the finger over different areas of the exposed sinus, pulsation was found to be present at every point, though not as strong or forcible, perhaps below, as above. Pulsation was also discernible to the eye.

From the symptoms exhibited by the patient and the extensive purulent condition existing, as well as the appearance of the sinus, it was thought best to open it. The wound was irrigated with bichloride, and this followod by irrigation, with hydrogen peroxide, full strength. A freshly sterilized aspirating needle was thrust into the sinus above the bend, and a straw-colored fluid withdrawn. The needle was again introduced, this time below the knee, and after drawing back the piston nothing came into the barrel of the syringe. Feeling certain that I had to deal with a thrombosed sinus, a longitudinal incision was made through the sinus wall, from the bend above, to the extent of its exposure below. This incision was followed by a flow of pus, darker in color than that evacuated from the mastoid cells, and very thick. There was complete absence of any fluid blood whatever. The incision in the sinus wall was extended upward and backward as far as it had been exposed, and a rather firm straw-colored clot three-fourths of an inch long was removed with the curette, together with a small amount of straw-colored serum. This removal was followed by active hemorrhage, and the bleeding was allowed for a few seconds, and then controlled by a pad of iodoform gauze, placed firmly against the open vessel. The rest of the sinus below was uncovered as rapidly as possible to the bulb. Before trying to establish the blood current here the internal jugular, which had been exposed, was palpated and found to pulsate, and seemed normal in every way. The incision was carried through the sinus wall to the bulb, with still no hemorrhage. By the aid of the curette, small pieces of clot, darker in color than that found above and of a firm consistency, were removed. Considerable granulations were also removed from the lateral wall of the sinus, next to the mastoid. Firm pressure was made upon the internal jugular, as close as possible below the bulb, and a probe and a very small wire curette were used in trying to establish the return current, which was successfully done after two or three minutes' work, for upon releasing the jugular below, the blood at once came through the bulb, and was easily controlled by packing gauze into it. The parts were again irrigated with hydrogen peroxide, and packed with iodoform

gauze, separate pieces being used for the exposed portion of the dura and sinus. The incision over the jugular was closed by sutures. The posterior one was left open and packed. He was returned to the ward as quickly as possible, surrounded by hot water bags and hot bottles and the foot of the bed elevated, as, during the last twenty minutes of the operation, he required almost constant stimulation with whiskey, strychnine and nitro-glycerine. As he did not respond to hypodermic stimulation, eight ounces of a normal salt solution, at a temperature of 118°F., was thrown into the rectum, and was followed by a prompt response by the pulse, as noticed by its increased volume. This was repeated three hours later, as his pulse again became very weak, but responded fairly, though not as well as when the solution was first used.

Six hours after the operation his temperature registered 104.2°F., pulse 156 and respiration 42. He did very well for the next four hours, when his pulse again became very weak, and this time responded but feebly to the saline used in the rectum. After using whiskey, strychnine and nitro-glycerine with but little effect he was given a hypodermic of a solution of camphor dissolved in ether, with a very happy result, as the pulse became stronger, and from this time on he had no further collapse. The next day a slight facial disturbance was present, which afterward gradually disappeared, and could not be noticed by the tenth day. His temperature became gradually lower and on the sixth day registered normal. The wound in the neck healed kindly and the first dressing was removed the eighth day following the operation. There was no hemorrhage from either proximal or distal end of the sinus. From this time on he made an uneventful recovery, sitting up on the eleventh day, and was discharged from the ward and allowed to go home twenty days after the operation. On account of so much tissue having been removed (both bone and soft) there was left a circular sinus perfectly dry back of the auricle, and leading directly down to the drum membrane. This was closed by a flap operation nine months after his leaving the hospital, perfect union resulting and leaving a patent and normal canal. His hearing one year after his discharge from the hospital was, with the acumeter on the side affected, twenty-two feet. The whisper was heard at a distance of twenty-six feet.

There are several very interesting features in connection with this case.

First—While it is not so unusual to find a Bezold mastoiditis, it is, however, rare to find a double Bezold so extensive as existed here, for the accumulation of pus from the perforation at the tip was large

in quantity and the glandular involvement in and around it was very marked. The pus from the posterior perforation could have been evacuated without the free opening of the tissues over it, but in these cases I believe it safer to incise down to the abscess floor, thoroughly curette and pack and treat as an open wound.

Second—We must pay but little attention to the fact that the sinus pulsates, when there is strong evidence of a thrombus present, for in this case the pulsation was distinct, both to the eye and by palpation, though as previously stated there was less volume to the pulsation below the bend than above, this being due, no doubt, to the fact that below pus was already present, while above the knee the clot was rather firm and not broken down, and there was a small amount of serum in the vessel at this part, surrounding the clot, as proven by the aspirating needle and also when opened. The infection of the sinus probably took place by direct contact from the necrosed bone lying upon it, for here it was covered with plastic lymph and granulations and could easily have become infected in this way.

Third—I believe the cause of the temporary facial paralysis to have been due to the too tight packing that was passed through the aditus into the middle ear, for here, with the extensive necrosis which existed, it made after removal an unusually large opening and bled freely, and in dressing was packed firmer than usual to control this hemorrhage. This view is, I think, corroborated by the fact that as soon as the first dressing was removed and the aditus loosely packed the facial disturbance at once began to diminish, and before the next dressing was done there was no evidence of its presence whatever.

It is unfortunate, for future information and reference, that the discharge from the canal as well as the pus from the mastoid, sinus and epidural abscess was not examined to find out the nature of the infection, but, from experience with other cases, I feel sure that the streptococci must have been present here in abundance, and my only excuse for omitting such an important point was the marked serious condition of the patient and my anxiety to relieve him as speedily as possible.

(To be continued.)

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

Stated Meeting, March 28, 1900.

WENDELL C. PHILLIPS, M.D., Chairman.

Modified Transilluminator.

Dr. C. G. Coakley exhibited a modification of the usual instrument for transillumination, which he had devised in order to make it possible to sterilize it readily. The improvement consists in a glass tube, like a test tube, which slips over the instrument, thus protecting the latter from the saliva, and at the same time allowing of a more prolonged examination without annoyance from the heat.

The instrument is manufactured by Messrs. Waite & Bartlett, of New York City.

Rhinitis—Atrophic Chronic.

This was the special subject for the evening's discussion.

In this symposium the following subdivisions were presented:

1. *Etiology*—Dr. Francke H. Bosworth.

2. *Recent Contributions to Etiology and Pathology*—Dr. Jonathan Wright.

3. *The Importance of Distinguishing Functional Collapse of the Nasal Tissues from Atrophic Rhinitis*—Dr. Clarence C. Rice.

4. *Treatment by General and Hygienic Methods*—Dr. Thomas R. French.

5. *The Mechanical and Electrical Treatment*—Dr. D. Bryson Delavan.

6. *Local Treatment*—Dr. Chas. H. Knight.

These papers appear in full in the May Issue of "The Laryngoscope" in the order of their presentation.

GENERAL DISCUSSION.

Dr. Van Zandt, of Philadelphia, thought atrophic rhinitis could be explained in most instances from an inflammatory and bacteriological point of view. Before the stage of atrophic rhinitis he could usually detect a purulent stage, and prior to this was a history of

poor general health, or of the occurrence of infantile disease. These diseases he thought were followed by a sub-acute inflammation or by a chronic inflammation, which terminated ultimately in sepsis. This septic condition very commonly extended into the accessory sinuses, and, in time, atrophy was the result. Two or three years ago he had had bacteriological examinations made in 100 cases, and in about 25% of these pseudo-diphtheria bacilli had been found. In addition to the sepsis it seemed to him that there was often a certain amount of auto-intoxication.

Dr. Coyle, of Hornellsville, said that he cleansed the nose with hydrozone and some antiseptic, and then inserted plugs of gauze, which were allowed to remain for twenty-four or thirty-six hours. They invariably gave great relief, far more than the remedies that had been mentioned.

Dr. W. Freudenthal said that it had been his lot to see an unusually large number of these cases. In his opinion, the dryness of the nose was largely attributable to the dryness of the atmosphere in our living rooms. To be comfortable there should be 60% of relative humidity, and there should not be less than 40%, yet actual observation had shown only 30% of relative humidity very frequently, and sometimes it had been as low as 15%. By experiment he had found that when absolutely dry air was inhaled, very much more moisture was given off than under ordinary circumstances—in other words, when the air we breathe is abnormally dry, the mucous membrane is forced to do an excessive amount of work. These facts perhaps also explain why in some cases the middle turbinate was apt to be hypertrophied, and the lower atrophied.

He was also interested to hear that Dr. Moure had done work with the internal massage of the nose and throat. But the originators and many contributors to this method were Braun and Laker; especially Laker has written a great deal on this subject. Dr. Freudenthal himself has advised some eight years ago an electric vibrator for the treatment of atrophic rhinitis; he has used it since that time with great benefit to his patients and would not like to be without it.

Dr. Beaman Douglass said he had always looked upon atrophic rhinitis as a constitutional disease. He had examined the tissues of atrophic cases with the microscope, and had not found bacteria. The changes in the tissues were fibroid, with atrophies of glandular elements, and disappearance of the cells forming the sub-epithelial adenoids larger and bear a strange similarity to those seen in a cirrhotic liver. Atrophic rhinitis he believed to be often the result of

internal intoxication. He commented upon the cycles of improvement and decline in this disease, and said that they had seriously interfered with his efforts to determine the amount of benefit from special methods of treatment. Among the older remedies he had found ichthyol the most useful, but he employed it in strong solution —50% or more. It produces a serous exudate immediately, and subsequent absorption of leucocytic infiltration, as he had proved to his satisfaction, shown by microscopical examination. A more novel method of treatment, and one which had seemed to him quite useful in cases of atrophic rhinitis, was the application of carbonic acid gas. It had been earnestly advocated by Dr. Achilles Rose.

Dr. R. C. Myles said that all of the cases coming under his observation had followed the course so graphically outlined by Dr. Bosworth. Reasoning by analogy he was forced to the conclusion that the disease is a specific one, and the cause, he thought, would be discovered in the laboratory. What we called atrophic rhinitis was nothing but the results of the disease that had passed by many years before. The treatment of the future would be carried out in very early childhood. He had found ichthyol by far the best remedy. He used it in the strength of 15 to 25% in solid vaseline, and on certain occasions applied limited quantities undiluted.

Dr. M. D. Lederman said that the very fact that it was a disease seen in early life pointed very strongly to its systemic origin. It was known that ichthyol depended for its action largely upon the contained iodine, and as it seemed so beneficial as a local application he would suggest the internal use of iodine as an adjunct to other treatment.

Dr. Meierhof was of the opinion that this disease was more prevalent among the Slavic races than among the native of this country. His experience had been that of Dr. Delavan, that the disease was less common now than formerly.

Dr. Emil Mayer said that he had noted reports in recent literature of cases of adenoid tissue large enough to require operation which had entirely disappeared after one of the infectious diseases, and hence he thought it quite possible for atrophic rhinitis to follow as a direct consequence of the acute diseases of childhood. By the use of Dr. Van Zandt's very clever and exceedingly efficient hot air apparatus he had been able to secure a degree of cleansing of the nasal passages which had been impracticable by other means.

Dr. Wendell C. Phillips said that he agreed with those who had mentioned ichthyol as the best of all the local remedies. He did not now use the keralene ichthyol, but a 25 or 50% solution of ichthyol

as a final application. In this connection he would emphasize the great importance of absolutely cleansing the surface before making any applications to it. The patient should also be carefully instructed as to the best method of cleansing not only the nose, but the vault of the pharynx. The latter was much more difficult to clean than the nasal passages, yet it should not be neglected on this account.

Dr. Wright, in closing, said that it was interesting to note that old Celsus had made use of the tampon treatment and of the cautery in the treatment of atrophic rhinitis. Nothing gave these patients so much relief as the proper use of the post-nasal syringe when the patient could be taught to use it. One-sided cases of atrophic rhinitis were often cured by straightening the nasal septum.

Dr. Delavan reiterated the statement that he had noted a diminution of atrophic rhinitis among certain classes of patients. It was true that atrophic rhinitis was more common among the Slavic immigrants—that badly-nourished and down-trodden class of people.

ABSTRACTS AND BIBLIOGRAPHY.

Arranged and Edited by

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with the collaboration of the

EDITORIAL STAFF.

It is our purpose to furnish in this Department a complete and reliable review of the world's current literature of Rhinology, Laryngology and Otology.

Authors noting an omission of their papers will confer a favor by informing the Editor.

I. NOSE.

Rhinoscleroma of the Nose and Larynx—KARL VYMOLA—*Wiener Klin. Rundschau*, No. 51, 1899.

At a meeting of the "Society of Bohemian Physicians" at Prague, held November 20th, the author reported a case of the above trouble. The patient was a thirteen-year-old boy whose troubles began in March, 1898. Nasal respiration was gradually more and more impeded, while hoarseness and a severe cough were associated with his other symptoms.

An examination showed the nose filled with numerous yellowish-green crusts. The alæ of the nose at their attachment were of a cartilage-like hardness. After removal of the crusts, the nasal openings were seen to be reduced to narrow slits by roughened tumors which sprang from the septum and the floor of the nasal cavities. These structures prevented any examination further into the nasal cavities. The soft palate, the pillars, the tonsils and the posterior pharyngeal wall were markedly hyperemic. Consequently posterior rhinoscopy was not practicable. Laryngoscopy showed the glottis obstructed by similar masses springing from the false chords and the posterior surface of the epiglottis. Examination of an excised piece showed the characteristic short rods in capsules.

The case is under treatment with a serum prepared after the formula of Dr. Honl. VITTUM.

Double Congenital Anosmia—PLAZEK, Berlin—*Berl. Klin. Wochenschr.*, No. 51, 1899.

The author relates a case and refers to the only other one he has been able to find recorded, that of Zwaardemaker.

In neither of these cases were any of the ordinary tests of smell able to awaken any response. Irritating substances like ammonia were felt as a sense of pricking, and the sense of taste was somewhat defective.

The author is of the opinion that in these cases there is an arrest of development in the gyrus uncinatus, and perhaps a subsequent atrophy of the olfactory tract. VITTUM.

Clinic Notes—O. F. BAERENS—*St. Louis Clinique*, December, 1899. EATON.

The Correction of Deviated Nasal Septa—RICHMOND MCKINNEY—*Memphis Med. Journ.*, February, 1900.

A detailed description of the technique of the Asch operation. Instead of general anesthesia, the author preferred cocaine. Of five cases operated, four have resulted entirely satisfactory.

W. SCHEPPEGRELL.

Observation on the Asch Operation for Deviation of the Cartilaginous Septum—MAX THORNER—*Journ. Am. Med. Assn.*, Jan. 6, 1900.

During the author's early experience deviations of the septum were a veritable bugbear. Since his adoption of the Asch method of operation he finds their treatment satisfactory. The steps of the operation as described are:

1. Preparation of the patient by sterilization of the nostrils and shaving the upper lip when necessary.
2. Anesthesia and placing the patient's head over the edge of the table.
3. Searching for and separation of adhesions between septum and turbinals.
4. Long crucial incision through septum, the two incisions meeting at the most prominent part of the deviation. Incisions made with Asch's septum scissors.
5. The segments are crowded over and their bases are thoroughly fractured with the finger.
6. The over-lapping edges of the segments are compressed with forceps.
7. Hemorrhage is checked with iced sprays and nostrils are cleansed.
8. Introduction of Asch or Meyer tube to support septum.

The after-treatment consists of the frequent removal of the tube and cleansing of the nostrils. ANDREWS.

Bullet Wound in the Head; Removal of the Bullet from the Nose Twenty Months Afterwards—CLAUD WOAKES—*Lancet*, January 6, 1900.

A man, aged twenty-four years, late a private soldier, presented himself on June 14, 1899, complaining of a foul-smelling discharge from the left nostril. He gave the following history: On October 20, 1897, he was one of those engaged in the brilliant attack on, and capture of, the Dargai heights, when he was shot from above, the bullet entering the skull just below the left frontal eminence. He became unconscious, but recovering quickly, was able to retire and receive first aid. The superficial wound in the forehead was stitched up. At the same time he expectorated a small piece of lead. He was sent to the base hospital, where his left eye, through

which the bullet had passed, was removed. On examining the left nostril, it was found to be almost closed by a broad bridge of mucous membrane running from the outer wall to the septum. After cutting through this, under cocaine, an examination of the interior of the nostril with a probe revealed a hard, partially movable substance buried in granulation tissue. This examination causing some hemorrhage, an antiseptic and astringent lotion was prescribed, and the patient was told to come again in the following week. On June 21 a clearer view was obtained, and, by seizing the hard substance with a pair of strong nasal forceps passed up the nostril, a large irregular piece of lead was removed without injuring the nostril, with a square inch of khaki attached, which had been carried in with the bullet from the peak of the helmet, the whole being covered with foul-smelling crusts and discharge. The hemorrhage caused by this operation was easily stopped by syringing with hot antiseptic lotion, which the patient was ordered to continue to use for a week, during which time several pieces of bone came away. Besides the discharge before mentioned, the symptoms had been severe headaches and slight attacks of ague; but when the patient was last seen, five months after the removal of the bullet, these symptoms had all disappeared. The bullet measured one inch in length, five-eighths of an inch in breadth, and three-eights of an inch in width, and it weighs 343 grains. The patient has now a large depressed scar over the left frontal eminence and eyebrow. The left eye is entirely gone, the left antrum is minus its nasal wall, and the anterior two-thirds of the inferior turbinated bone are absent, and there is a small stellate cicatrix in the roof of the mouth slightly to the left of the middle line. STCLAIR THOMSON.

Report on Henpuye in the Gold Coast Colony—ALBERT J. CHALMERS—*Lancet*, Jan. 6, 1900.

Henpuye, or dog-nose, is a disease frequently met with in the Gold Coast Colony and in certain portions of its Hinterland. The hideous deformity of the face which it causes is very striking to anyone who has lived in this part of West Africa. It is also known on the French Ivory Coast under the name of "goundu" or "anakhre," but "henpuye" is the native name (Appolonian) for the disease on the Gold Coast. The peculiar nature of the disease and the fact that, as far as I could find, very little was known as to its nature, led me to make the inquiries which are now embodied in this report. I regret very much that I am unable to refer to original papers on the subject or to be certain that I have the full literature, but my excuse is that libraries do not exist in West Africa. The only references which I have met with are those mentioned in Dr. Patrick Manson's work on "Tropical Diseases" (page 594), and they are those of (1) Professor Alexander Macalister (Royal Irish Academy, 1882), (2) Surgeon J. J. Lamprey, A.M.S., (*British Medical Journal*, vol. ii, 1887), (3) Dr. Henry Strachan (*British Medical Journal*, vol. i, 1894), and (4) Dr. Maclaud (*Archives de Médecine Navale*, 1895).

Henpuye starts in a native of West Africa during, or soon after, an attack of yaws, in which there is a history of the nasal mucous membrane being attacked, as a small bony swelling symmetrically placed on either side of the nose. This swelling, which is generally oval with the long axis directed downwards and outwards, is attached to the nasal bones, the nasal process of the superior maxilla, and also to the superior maxilla in the more advanced cases. It is produced by the deposition of new bone under the periosteum on the external aspect of these bones and grows slowly in all directions. It in no way affects the mouth or the orbital or nasal cavities in any case which I have seen, and the nasal ducts are quite unaffected. Rarely the growth is asymmetrical, being situated only on one side of the nose. Pain in the nose, with the presence of a sore in that organ, are the symptoms complained of at the commencement of the disease; later, headache is sometimes felt, and pain in the swelling during wet weather. As the growth becomes larger it seriously interferes with the sight by growing up in front of the eyes and even hiding them, but the author has never seen it cause destruction of the eyeball. The growths may remain quite small, or may grow to be large lumps. No case has been reported in which they break down or ulcerate. The following types of cases are fully reported and illustrated: (1) Slightly developed case; (2) moderately developed case; (3) advanced case; and (4) an asymmetrical case. As regards treatment, it has been attempted to reduce them with iodide of potassium, but without success. The only method of treatment appears to be removal by operation.

As regards the morbid anatomy, the periosteum strips off readily, and under this is a thin shell of compact bone which appears somewhat rigid on the side towards the periosteum. The rest of the tumor consists of cancellous bone. The whole swelling cuts readily with bone-forceps, and consists of quite soft bone. On making microscopical preparations there were signs of ossification in membrane proceeding under the periosteum, and the rest appeared like ordinary wide-meshed cancellous bone. The whole process appeared to be that of a slow "osteoplastic periostitis."

Etiology.—Two views on the etiology of this disease have been brought forward up to the present time, viz., (1) that the swellings were of a racial character, and (2) that the process was started by the larva of some insect. With regard to the first, the disease is found in Ashantis, Grunshis, Fantees, Ahantas, the Ga people, etc., races quite different from one another, so that this view cannot be entertained. As to the second, there is no evidence which would support the idea that the disease was started by a larva. On the other hand, there is always the history of yaws and of the tumor starting during the attack of yaws—*i. e.*, during the period of eruption or soon after. Then, again, the patients complain of pain in the nose, with, in some cases, distinct history of a sore, and sometimes discharge preceding the swelling. This might be due to some irritation or ulceration of the nasal mucous membrane by the yaws. StClair Thomson.

II. MOUTH AND NASO-PHARYNX.

Case of Epithelioma of the Tongue—LLEWELLYN ELIOT—*Va. Med. Semi-Monthly*, Jan. 12, 1900.

The growth had been treated with caustics without success It was then excised and no signs of return were found eight years afterward. A histological examination showed it to be squamous epithelioma. W. SCHEPPEGRELL.

Acute Tonsillitis—EDWIN GLADMON—*North Carolina Med. Jour.*, Dec. 20, 1899.

Mercurials and calcium sulphide are useful in the early stages, and later the salicylate and benzoate of soda.

Locally hydrogen peroxide and guaiacum are recommended. Protonuclein is useful when the pharynx is involved.

W. SCHEPPEGRELL.

Remarks on the Best Operation for Removal of the Faucial Tonsils and Adenoid Vegetations in the Vault of the Pharynx—EDWARD F. PARKER—*Carolina Med. Journ.*, February, 1900.

For removal of the faucial tonsils, Mackenzie's instrument is preferred, a four per cent solution of cocaine and antipyrine being first injected into the tonsils. The author suggests the possibility of the extract of suprarenal gland being of advantage in this operation.

For adenoids, a modification of the Gottstein curette is preferred. W. SCHEPPEGRELL.

The Tonsils as Portals of Infection—EMIL MAYER—*Journ. Am. Med. Assn.*, Dec. 2, 1899.

The author begins with the statement, that certain forms of infectious diseases follow closely on tonsillar affection, the same micrococci existing in the former as in the latter, and hence are mentioned as being of tonsillar origin. After a comprehensive discussion of the subject he draws the following conclusions:

1. Infection arises in the tonsil.

2. Tonsillar infections are often serious in their sequelæ, and every step to prevent recurrent attacks should be taken.

3. The existing tonsillar disease should be energetically treated.

4. Careful examination and treatment are absolutely essential in the interim.

5. Following angina, the heart and other organs should be examined from time to time. ANDREWS.

The Tonsillar Ring—DERRICK T. VAIL—*Lancet-Clinic*, Jan. 6, 1900.

The tonsillar ring consists of at least seven distinct masses of lymphoid tissue arranged in an annular manner in the pharynx. The upper part of the ring lies in the naso-pharynx and comprises a large central mass called "Luschka's tonsil," "the pharyngeal tonsil," or adenoid vegetations. On each side of this mass is a smaller lymphatic gland overlying and in close proximity to the Eustachian tube orifice. This has been called the "tubal tonsil."

The lower part of the tonsillar ring lies in the fauces and comprises the "faucial tonsils," located between the pillars and the "lingual tonsil," lying on the root of the tongue in front of the epiglottis. The keystone of the tonsillar arch is the tonsil of Luschka, or pharyngeal tonsil. All children have pharyngeal tonsils, but not all have adenoid vegetations. The one is physiological, the other is pathological.

The normal pharyngeal tonsil disappears about puberty, but when diseased may continue even to old age. Of the many evil results of adenoids the most distressing is their remote effects on the ears. While the adenoids may disappear with age, the results do not.

The tubal tonsils closely resemble the others in structure, but are much smaller. They probably only exist when the other adenoid vegetations are exuberant.

In the removal of adenoids these growths should be looked after.

A striking peculiarity of the lingual tonsil is that its hypertrophy is most frequently found in adults.

The principal symptoms of enlarged lingual tonsils are:

1. Sensations of a lump in the throat, which the patient is constantly endeavoring to swallow, but which seems to lie just outside of the reach of deglutition.
2. Early voice-fog, noticed in public speakers.
3. A barking cough at puberty.
4. Constant desire to clear the voice by hemming and hawking, with nothing raised.
5. Relief of symptoms during meal-time.
6. Spasmodic asthma.
7. Globus hystericus.
8. Patient fears there is cancer or consumption of the throat.
9. Vague distress in the throat that the patient cannot locate.
10. Blood-stained sputa.

All of these symptoms never occur in a given case, and usually only a single one predominates.

A case is recorded showing the good results following removal of the lingual tonsil. ANDREWS.

Regional Minor Surgery. (Retro-Pharyngeal Abscess, Ludwig's Angina)—GEORGE G. VAN SCHAICK—*Internat. Journ. Surg.*, Feb., 1900.

There are two methods of opening a retro-pharyngeal abscess. First, by way of the mouth; second, through the neck. If by way of the mouth, the patient's head should be fully extended, in a position lower than the body, in order to avoid flooding the larynx with pus. It is advisable, if possible, to aspirate or to empty the abscess through the small trocar before making the incision. The operation has some dangerous features, not only because the pus may reach the larynx, but also because the patient keeps on swallowing pus for some time. If we have time and facilities for a neat surgical operation, it is, therefore, much better to empty the abscess through the neck.

An incision is made along the anterior border of the sterno-mastoid till the great vessels are reached, and then by blunt dissection internal to the carotid we reach the walls of the abscess, or, at least, the swollen tissues surrounding it. A finger then placed in the mouth, and another passed in the wound, will give an excellent idea of the exact position of the abscess, which is now opened with a pair of forceps, whose jaws are then separated and withdrawn. Careful washing and drainage then follows.

In a few instances good operators have failed to find pus in this way, and have been compelled, after all, to operate through the mouth. If the latter procedure is adopted, wrap the child in a sheet and use the aspirator or trocar as above described. If the child is restless or frightened, it may be best to use the knife at once. The instrument is to be wrapped in gauze or cotton to within half an inch of the point. A mouth gag is used. The tongue is to be depressed with the left forefinger and the swelling felt, which is often quite low down. The knife must be introduced in the middle line to avoid severe hemorrhage. A cut is to be made downward about half an inch, and the child immediately tilted sharply backward to avoid the entrance of pus within the larynx.

Ludwig's Angina.—This affects the floor of the mouth, involving the cellular tissue between the mucous membrane and the mylo-hyoid muscle. Evidences of fluctuation must never be waited for, for sloughing and gangrene are more common than abscess, and the condition is, besides, apt to be fatal if treatment is delayed. It is impossible to thoroughly expose the focus of infection by way of the mouth. A long incision should be made parallel with the border of the lower jaw, cutting through the mylo-hyoid muscle and opening widely the submaxillary space. No pus may be found, or only a few drops of stinking, sanious, turbid fluid. In advanced cases a regular gangrenous condition has developed. The washing out should be done with peroxide of hydrogen or permanganate of potash solution, and all gangrenous spots touched with a strong solution of zinc chloride or with the actual cautery. The process is often so severe that the patients will die of sepsis in spite of such energetic treatment. EATON.

III. ACCESSORY SINUSES.

A Contribution to the Statistics of Tumors of the Frontal Sinus

—MOSER—*Beiträge zur Klinischen Chirurgie*, Band xxv, Heft 2.

This paper consists of a very full discussion of the growth and peculiarities of two tumors, and a comparison of their structure with that of other tumors reported by various authors.

The first case proved to be an osteoma, having its origin within the sinus, the walls of which were enormously distended. The tumor was encapsuled and laid free in the distended frontal sinus connected only by a broad bony pedicle on the median side. When this pedicle was chiselled off the whole tumor was easily removed.

Following the history of this case is a discussion of various other tumors that have been reported. It appears that they differ materially in their point of origin, some starting from the anterior wall of the sinus, whilst others, as in this case, originate within the cavity. One case, reported by Dürnhöfer, consisted of a thickening and expansion of the anterior wall, so that when the sinus was opened it presented simply an enormous enlargement of its cavity with its anterior wall thickened to 7.5 mm.

As to the therapy of these cases, which, of course, means simply the radical removal of the tumor, each case should be governed by its own conditions. In this particular case under discussion, the growth of the tumor had gradually crowded the right eye forward and downward, although its function was only slightly interfered with. As a result of the operation the eye returned nearly to its normal situation, but an amaurosis developed so that the organ was useless. The author's advice, therefore, is to take heed before performing the radical operation that nothing will result which is worse than the original tumor.

Of course in those cases of enormous development of the tumor where great deformity results, or where life is threatened simply by the encroachment of the tumor on the neighboring structures, we must operate whether or no.

The second case was that of a girl of sixteen, who had been aware of the presence of a tumor since the age of seven. The tumor at the time of the report was about the size of an apple and drove the left eye downward, forward and outward. The skin was freely movable over the entire surface. Along the edge the tumor appeared to show a bony hardness. Toward the center the bony covering dwindled to a mere film. Just over the eye the tumor was soft and gave an uncertain sense of fluctuation.

At the operation this soft portion was found to be cystic in nature. A piece of the anterior wall of the sinus, which was very thin, was removed, and the sinus curetted with a sharp spoon. It was filled with a soft growth resembling blood clots. When the sinus was cleared out it was seen that various pockets extended far out on every side, but farthest toward the back where they reached the vicinity of the body of the sphenoid and possibly into the sphenoidal sinus.

The mass removed from the frontal sinus was examined under the microscope and found to consist of a fibrous stroma, the nuclei of the cells being elongated or spindle-shaped. This stroma was filled with hyaline masses which differed materially from the rest of the structure in that they required different stains to bring them out.

Whether this was a sarcoma or a hyaline degeneration of an endothelioma was not clear. An apparent recurrence of the tumor necessitated a second operation; but it was shown that the second tumor was not a real recurrence, but only an extension of a part of the structure left behind at the time of the first operation. The author, however, evidently leans to the opinion that the growth was sarcomatous in nature, for he gives several brief histories of sarcomata in this situation reported by various authors.

VITTUM.

IV. LARYNX AND TRACHEA.

Laryngeal Edema Following the Administration of Potassic Iodide—GEORG AVELLIS—*Zeitschr. für Prak. Aertzte.*, November 15, 1899.

The author reports another case of this accident. The whole number on record is exceedingly small, not greatly exceeding a dozen altogether. From a study of the cases reported he comes to the conclusion that the edema may occur after only a very few doses have been taken. In his own case three doses only had been administered before the symptoms of edema were manifest. Once the symptoms have subsided the remedy may be again administered, for the system seems easily to acquire a tolerance of it.

The author advises that in cases where the iodide is to be given to patients who cannot be seen daily, they should be instructed to discontinue the medicine at once, should hoarseness or difficulty in swallowing appear.

VITTUM.

The Cure of Stammering and Stuttering—J. C. CONNELL—*Kingston Medical Quarterly*, January, 1900.

An accurate knowledge of the conditions absolutely essential for the articulate formation of syllables is necessary to treatment. They embrace, (1) a sufficient supply of air in the air tubes, and in the accessory tubes as far as the point where articulation is accomplished; (2) subordination of the consonantal to the vocalic action, and (3) the preservation of a certain rhythm, that is to say, a proper sequence of the different acts, so that each is allowed the proper space of time.

Stammering is a fault of articulation of vocalised sound. Stuttering is a fault of co-ordination between articulation and vocalization. In both classes of cases, the apparatus of speech in the mouth and larynx is normal, but the development of the thorax and respiratory system is defective. The individual does not

inspire enough air, and is not economical enough in using it. He may be compelled to stop in the middle of a word to draw breath.

Stammering has relation to vowel sound, involves individual letters and may be detected in an attempt to repeat the alphabet; is not associated with other faulty muscular movement and is seldom due to lack of nervous control.

Stuttering has relation to the pronunciation of consonants, involves only syllables or words; while each separate letter can be delivered. It is associated with spasmodic movements of other muscles, and is worse when the patient is under observation. The party will probably speak without impediment in solitude or in darkness.

In the vocal mechanism there is a decided want of promptitude in the supply of voice for the initial syllable, and in addition the voice is not only lagging but feeble in quality.

Among the causes, are given: *Sex*—Males are affected in the proportion of four to one female; imitation; neuropathic tenderness, with fright or violent emotion as an exciting cause; heredity, often combined with imitation; and real organic disease, a defective development.

The prognosis is most favorable in a patient of twelve to sixteen years, old enough to realize the importance of overcoming the defect and yet not too greatly habituated. If a musical ear is added, it is better still. It is unfavorable in hereditary cases; in congenital irritability of the co-ordinating apparatus; with spasms of the glottis; in advanced years, etc.

Under treatment the writer sketches briefly the many attempts to treat these cases surgically; and states that they form a melancholy chapter in the history of surgery.

The proper time is gymnastic and didactic—beginning with exercises in breathing, vocal gymnastics and exercises in the combination of consonants and vowels. Special teachers are of doubtful usefulness, as being generally unscientific, and ignorant, and disposed to resort to tricks and secret methods.

GIBB WISHART.

Autoscopy of the Larynx and Trachea and its Relations to Esophagoscopy—ALFRED KIRSTEIN—*International Clinics*, Vol. I, Ninth Series, April, 1899.

It has long been popularly supposed that, since the path through which rays of light must pass from the larynx and vocal cords was naturally an angular one, some means of bending the rays must be employed to make those parts visible. It seems not to have occurred to anyone—or, at any rate, the idea was not put into practice—that the obstacles in the way of direct vision, namely, the epiglottis and the prominence of the base of the tongue, might be removed and the path of the rays of light made a straight one.

The writer asserts that in many cases it is a comparatively simple manipulation to remove these obstacles and thus secure direct inspection of the larynx. He first accomplished this some three

years ago, and has called the method of procedure autoscopy. All that is required is a tongue depressor, properly used. Just in front of the epiglottis is a groove—the fossa glosso-epiglottica—just beneath which is the hyoid bone. The groove marks also the position of the glosso-epiglottic ligament, and it is from this point forward that the tongue must be controlled in order to make the line of vision to the larynx a straight one, for it is just in front of the groove that we find the highest point of the lingual arch. It has been found that if the end of a tongue depressor be placed upon the glosso-epiglottic ligament, and it, together with the hyoid bone, be pressed downward and forward, the epiglottis will fall forward and lie along the upper surface of the blade of the depressor, out of the line of vision. Thus both obstacles may be removed by one and the same manipulation.

A proper position of the head is absolutely necessary, and it is described as being that of "median elevation," *i. e.*, about half way between a position at right angles to the trunk and that of extreme extension.

The old idea that placing a depressor upon the very base of the tongue, behind the circumvallate papillæ, will produce uncontrolable pharyngeal contractions, and even vomiting, is regarded as erroneous, the writer having found that the rear of the tongue is no more sensitive, practically, than the rest of the organ if touched quietly and firmly.

While it is asserted that autoscopy will occupy a prominent place in laryngology, it is not claimed that it will replace the mirror, for there is a large class of people in whom the anatomical configuration of the tongue makes it impossible to see the laryngeal structures satisfactorily by this method, and another class in whom supersensitiveness precludes autoscopy.

Autoscopy promises to be of value in the use of the esophagoscope, an instrument that has not come into general use because of the difficulty in introducing a straight instrument. Ross.

Asthma and its Treatment—Murdoch Chisholm—*Maritime Med. News*, Jan., 1900.

The author premises by stating that asthma has been the companion or bane of his life, and that he owes his knowledge of this subject to the regular profession—to Guachs—and like Jermer, to popular observation.

"Asthma is caused by a diseased condition of any one of the parts entering into the reflex arc of the respiratory system, and bears a very close resemblance in many respects to the diseased condition of the reproductive organs, which manifests itself in constantly recurring pathological organisms."

At first the reflexes were rampant during sleep, for the asthmatic habit must be confirmed, and the nervous arc very irritable, before asthma appears in waking hours.

Again, the frequent repetition of stimuli may render the mucous membrane of the respiratory tract and the reflex centers impres-

sionable and irritable, so that habit may be confirmed, although the original cause is removed. This latter point is illustrated in the writer's own case, when he is subject to nightly attacks of dyspnea for months, after the bronchial irritation of the preliminary hay fever subsides.

The asthmatic heading is nearly always engendered by bronchitis, inflammation or irritation. The writer has not met with any cases in which the bronchial centers were irritated primarily. As the result of a pronounced impression upon the peripheral nerves of an organ may determine a modification of function in the center presiding over that organ, we have in bronchitis this pronounced impression—and the result of the stimulations of the center may irritate a habit, which will lead to asthmatic paroxysms without bronchitis.

Granting an impressionable center or pulmonary arc the immediate causes determining spasm after the habit in confirmed may be central or peripheral. This was illustrated to the writer by a very severe asthmatic seizure, the result of seasickness while crossing the Irish channel.

Constipation has also sufficed to produce an attack while accumulation of uric acid in the system may irritate the bronchial tract.

The author believes that prevention is better than cure, and treats with alteratives rather than antispasmodics, which he gives long and continuously. Iodide of ammonium or syrup of hydriodic acid given at bed-time are pretty sure to ward off the usual nightly attacks, and given for months at a time may remove the asthma entirely.

Arsenic is also used as having a modifying influence upon the nervous cells. Every case is to be a study by itself, and treatment must be variously directed, as the determining influences are peptic, rectal, nasal or humoral. GIBB WISHART.

V. EAR.

A General Consideration of Diseases of Ear, Nose and Throat—WM. J. COX—*Atlanta Journal-Record of Med.*, Nov. 1899.

A short paper with some recognized considerations on this subject. SCHEPPEGRELL.

Some Ocular and Aural Manifestations of Hysteria—H. GIFFORD—*West. Med. Review*, Nov., 1899. EATON.

Nasal and Aural Complications in Epidemic Influenza—S. F. SNOW—*Journ. Am. Med. Assn.*, Nov. 25, 1899.

The importance of ear and nose complications in epidemic influenza impresses itself on us as we come more and more to see that much of the acute suffering in the disease depends upon the severity of these complications. The membrane of the post-nasal

space is affected in almost every case, and in some of the aggressive ones the Eustachian tube, middle ear and mastoid cells become involved in spite of our best efforts. In patients with a fair natural power of resistance proper treatment may prevent the formation of pus, but in those of lowered vitality and diminished resistance the formation of pus in some of the deeper sinuses cannot be prevented. The ethmoidal cavities are particularly susceptible to influenzal inflammation. The severe cranial pains which usually accompany epidemic influenza are not neuralgias, but are due to pressure of nasal tissues or imprisoned mucus. When the nasal mucous membrane is so swollen as to cause pain or retention of secretions sprays or applications should be used. The cautious use of cocaine solution is mentioned. The use of Seiler's, or other alkaline solution, followed by benzoinol, is advocated. Both anterior and post-nasal applications should be made.

Serious middle-ear complications can often be aborted by blood-letting and Politzerization. If the drum membrane becomes bulged it should be incised. The knife should be made to cut the periosteal covering of the inner wall of the middle ear. Mastoid inflammation in any degree demands earnest consideration, and though it may be self-limiting, a few hours delay may mean much to the patient. The blood should be either driven from, or extracted from the part, and whichever plan is chosen it should be pursued with promptness and vigor. Either the ice bag or hot fomentation may be used, but the use of either should be continuous for several hours. It is better to keep the blood out than to have a period of recongestion. The general practitioner should be equipped both with the knowledge and means of attacking the local conditions as well as those of the general system. ANDREWS.

Diagnosis and Treatment of Middle-Ear Diseases—JAMES H. FARBER—*Journ. Am. Med. Assn.*, Dec. 23, 1900.

The author believes that every physician should have clearly fixed in his mind a simple, concise classification of middle-ear diseases. He has adopted the following:

Acute catarrhal.

Chronic catarrhal.

Acute purulent.

Chronic purulent.

Sub-acute intumescent.

Sub-acute cirrhotic, hypertrophic or atrophic.

A short account of the diagnosis and treatment is given for each of these conditions.

Inability to hear the watch while the voice is heard well, is given as a "new diagnostic symptom of Eustachian stricture."

The author believes that all cases of middle-ear trouble are due to some one or other of the dyscrasias: syphilis, scrofula, rheumatism, etc. ANDREWS.

Arthur Hartmann—Taken from the *Berliner Ærztecorrespondenz*, No. 15, 1898.

The author reports the case of two children in the common school of Berlin who were so deaf that they were unable to hear the instruction given. Both had been in the lowest class for four years. Proper treatment resulted in rapid improvement in one child while it was without result in the other. The first child was soon placed in a higher grade after having been for four years in the lowest. The author is of the opinion that this sort of thing is not at all uncommon and affects quite a large number of children. The introduction of school physicians would enable those cases which are amenable to treatment to be restored, while the others could be sent to a deaf and dumb institute. VITTUM.

Uncommon Pyogenic Infection of the Middle Ear—ROBERT SATTLER—*Journ. Am. Med. Assn.*, Feb. 10, 1900.

The author discusses inflammations secondary to operations on posterior and middle-turbinal hypertrophies. Otitis is less liable to follow the use of the cold snare than the galvano-cautery. A case is reported in which an unusually severe otitis followed cauterization of the posterior portion of the turbinal. Twelve days after the nasal operation the mastoid was opened and a large extradural abscess was evacuated. ANDREWS.

Otitic Pyemia—EDGAR MEIER—*Münchener Med. Wochenschr.*, Oct. 24, 1899.

The author writes in contravention of the view that there are two or three kinds of otitic pyemia. The varieties given by some authors are pyemia with thrombosis of the lateral sinus; pyemia without a thrombosis of this sinus, where presumably a thrombosis of the small veins of the petrous portion exists, and, finally, a septic condition where the infection is carried through the lymphatics.

The author thinks that in every case a careful examination will reveal a thrombus of the sinus, and says that, in his opinion, those cases which are said to be free from this complication have not been closely investigated. Many cases of thrombus are situated far down even in the bulbus venæ jugularis while the sinus is open above. An exploratory puncture is of no value, for free blood may be obtained even when a thrombus is present. In his own cases he has frequently met with profuse hemorrhage on opening the sinus, and yet when the bleeding had been controlled by the tampon, inspection showed the presence of a thrombus even though it might not be exactly at the point of incision.

The author thinks that this artificial classification of these cases tends to confuse the practitioner, and might perhaps lead him to omit a procedure which would save the patient's life. VITTUM.

Phonetic and Pneumatic Massage and its Application to Diseases of the Ear—B. S. STEPHENSON—*Journ. O., O. and L.*

Though the author does not consider pneumatic massage a cure-all he believes it an adjuvant without which but little can be done in chronic deafness, tinnitus aurium, etc. He has seen a number of patients removed from direct observation for three years who have retained the full benefits they obtained under treatment by massage. He thinks the rapid strokes frequently employed are responsible for the lack of benefit in many instances. A maximum of thirty strokes per minute gives the ossicular chain and its accompanying muscles and the drum time to use their own power of muscular contraction. A more rapid beat simply produces an anesthesia of the parts and confusion even for a person of good hearing. F. C. E.

Treatment in Acute Otitis Media—HUGH EDWARD JONES—*Liverpool Medico-Chirurgical Journal*, No. 36, 1899.

The author emphasizes the importance of the early detection and treatment of suppuration in the tympanum and mastoid in acute otitis media, while fully sharing the general opinion as to the value of radical operative treatment in chronic purulent disease of the middle ear. He submits (1) that once the wall of a great sinus or the dura has been penetrated, there can be no certainty of a successful issue to operative treatment; (2) that while operations for the relief of extra-dural complications of suppurative otitis, *i. e.*, extra-dural abscess, commencing phlebitis, mastoid abscess, cervical abscess, etc., have been invariably successful as far as the complication itself is concerned, these operations, and the radical operation for simple chronic suppurative otitis, have not always resulted in cessation of the discharge, nor in restoration of the hearing power; (3) that with the exception of tubercular cases —and even this is a doubtful exception—all cases of chronic suppurative otitis have once been cases of acute or sub-acute otitis media, and many of them non-suppurative otitis; and, further, that the majority of these cases, by appropriate treatment during the acute stage, might have been prevented from becoming chronic. He cites Downie's statistics, resulting from the examination of 600 children with ear disease of whom 404 had suppurative otitis media, 404 of them resulted from scarlatina, 15 from whooping cough, 3 from mumps, 147 from acute catarrh, 101 during and probably on account of dentition, 8 from syphilis, 40 doubtful history. The author further submits (4) that grave intra-cranial complications may, and often do, arise during the acute stage of suppurative otitis. He has found that extra-dural abscesses are much more likely to occur in the acute than in the chronic stage, thus agreeing with Grunert, who attributes this fact to the presence of pneumococci. He especially draws attention to those cases in which the acuter symptoms of suppurative otitis have subsided in the course of a few days, but with continuance of discharge and deafness, and states that if there is tenderness on pressure or tapping on the base or

apex of the mastoid; if the apex feels to be prolonged on the affected side; if there is a slight cushiony feel on one side as compared with the other; if there is increased heat on one side; if on rubbing the stem briskly on both sides, he finds that one side assumes a duskier red; if there is pain or stiffness on moving the head from side to side, with rigidity of the sterno-mastoid; if several or all of these signs are present, he concludes that an exploration of the mastoid cells is necessary, and in at least four out of five he finds pus.

The author also lays stress on the importance of post-nasal adenoids and of permanent perforations of the membrana in causing relapses or continuous suppuration. P. WATSON WILLIAMS.

Combination of Otitis Media and Cerebral Abscess of Nasal Origin—KOEBEL—*Beiträge zur Klinischen Chirurgie*, Band XXV, Heft 2.

The paper begins with some statistics showing the extreme rarity of cerebral abscess as a result of nasal disease. Then follows the history of a case which is briefly this: The patient, a man of thirty-nine, had suffered from a discharge from his right ear, accompanied by severe pain fifteen years before. At that time several retroaural abscesses were opened, but no operation on the bone was made. Hearing not much diminished. At the same time there was present considerable nasal obstruction. These symptoms have begun to reappear during the last two months and an examination showed a profuse purulent discharge from the right ear and a perforation in the lower anterior quadrant. A muco-purulent discharge from both nostrils. A polypoid thickening of the right middle turbinal. Transillumination negative, or nearly so. Ordinary treatment was adopted. Fourteen days later patient was suddenly seized with fever and severe headache in the frontal and temporal regions. He presented a drowsy, dull appearance and much resembled a thoroughly drunken man. These conditions continuing, he was placed in a hospital and the middle ear opened out into a common cavity with the antrum and the mastoid cells. The antrum and cells contained pus. The patient only partially recovered from the anesthetic and soon died. The autopsy revealed an abscess the size of a hen's egg in the right frontal lobe, which connected with the corresponding frontal sinus by a perforation through its posterior wall. The abscess was situated at the apex and base of the white matter of the frontal lobe.

After this history the author takes up the statistics of the varied reported cases of death from frontal empyema. Among Kuhnt's seventeen cases, five died from intradural abscess. It is a noteworthy fact that in the majority of these cases the naso-frontal canal was freely open, thus showing that the burrowing of the pus into the cranial cavity was not due to an obstructed natural outlet. Hajek, however, attributes these cerebral abscesses mainly to just such an obstructed condition of the naso-frontal duct; his argument being that the duct was really obstructed at first, but that

after the pus had found another exit and pressure was removed, the swelling of the duct disappeared and the passage, therefore, was found patulous at the autopsy.

These cases are rarely operated on during life, for an abscess of the frontal lobe gives rise to no localized symptoms unless it is situated in the left third frontal convolution, when aphasia may appear. Of course if the abscess involves the lateral convolutions, motor symptoms will develop.

The paper closes with a discussion of certain symptoms, such as ataxic gait, headache, etc., which, however, seem to be rather uncertain guides. VITTUM.

Fifty-One Mastoid Cases—D. MILTON GREENE—*Journ. Am. Med. Assn.*, May 20, 1899.

Thirty-six of the cases presented no unusual conditions. Of the remaining fifteen cases each showed some peculiar symptom or condition which the author describes in detail. There were four brain abscesses and one perforation of the sigmoid sinus. No hard and fast rules can be laid down for mastoid operation; the author usually perforates the cells and antrum in the depression one-quarter to one-half inch back of the auditory canal, using a hollow chisel. From this opening he proceeds to remove as much of the bone as is necessary, always having in mind the important anatomic structures.

ANDREWS.

Küster's Osteoplastic Opening of the Mastoid—P. PASSOW—*Münchener Med. Wochenschr.*, No. 49, 1899.

A careful review of Küster's paper in the *Centrallbl. für Chirurgie*, No. 43, 1899. The author does not approve of the operation there described. In the case especially of chronic troubles he deems it far better to leave the field of operation open to inspection, until all signs of suppuration have disappeared. This, of course, cannot be done with Küster's osteoplastic method. The author carefully analyses Küster's cases and comes to the conclusion that of the nine reported, only four can be said to have definitely healed.

VITTUM.

Fractured Base, with Deafness, Tinnitus, Vertigo, Exophthalmus, Facial Paralysis, Mastoiditis—J. A. STUCKY—*Journ. Am. Med. Assn.*, November 10, 1899.

The patient after a heavy blow on the head was unconscious for a short time. There was no hemorrhage from the nose or ears, but the injury was followed by great tinnitus. A week after the accident he became very deaf in the right ear and had right facial paralysis. Five weeks later he presented a dazed, listless appearance, with bulging of the right eye, and some dimness of vision. The tissues over the mastoid were thickened and painful and there was swelling of the posterior wall of the external auditory canal.

The mind was sluggish and he complained of constant headache, fullness and roaring in the ears, constant vertigo, a feeling as if he would fall to the left, and inability to sleep. There was some aphasia, unsteady gait; speech at times was difficult and incoherent.

In doing the Stacke-Schwartze operation the middle ear was found filled with clotted blood. The operation was tedious because of the great density and thickness of the outer table. The patient made a good recovery. All the symptoms except the facial paralysis disappeared in a few hours. The author assumes that there was fracture of the base of the skull. ANDREWS.

VI. DIPHTHERIA, THYROID GLAND, ESOPHAGUS, ETC.

Proceedings of Kingston Medical and Surgical Society—W. T. CONNELL—*Kingston Medical Quarterly*, Jan., 1900.

The author exhibited a larynx, pharynx and esophagus from an insane patient, in whom a partially cooked potato, 1¼ by 1 inch, had lodged opposite the cricoid in the esophagus, causing a necrotic ring of mucous membrane, and death by edema of the glottis in thirty-six hours. GIBB WISHART.

Carcinoma of the Esophagus—AUGUSTUS A. ESHNER—*Med. Fortnightly*, Feb. 26, 1900.

A white man, aged sixty, was admitted to the Philadelphia Hospital, August 16, 1899, and died September 17, 1899. On admission he complained of cough and expectoration, with inability to retain food. The family history presented nothing noteworthy. Patient denied venereal infection. Cough had existed for a year and there was rather profuse expectoration. For a year there had also been vomiting after eating. The vomited matter consisted of the food last ingested, but never contained blood. There had been considerable loss of weight, and there was also shortness of breath.

Examination of the chest led to a consideration of the existence of tuberculosis. An esophageal bougie, with a bulb one-half inch in diameter, encountered obstruction at a distance of eleven and a half inches beyond the margin of the teeth. The smallest bulb available, one-fourth inch in diameter, passed into the stomach with difficulty at a distance of sixteen inches. The stricture was estimated as being three-fourths of an inch long. Neither tubercle-bacilli nor carcinoma cells could be found in the stomach contents.

On post-mortem there were found chronic fibrous pleurisy, fibroid myocarditis, atheroma of the coronary arteries, tuberculosis of both lungs, a moderate degree of parenchymatous and interstitial nephritis, chronic gastritis, and stenosis of the esophagus, with ulceration.

A careful histological study of some of the tissue proved it to be an esophageal epithelioma. EATON.

OBITUARY.

Dr. W. McNeill Whistler died in London, February 27th, at the age of sixty-three. His health had been reduced for some time and his demise, though a shock to the medical world, was not a surprise to his many friends.

In America it caused regret not only for his loss to laryngology, for with this realization was mingled the consciousness that he was our own. Dr. Whistler was an American and graduated from the University of Pennsylvania in 1860, and though his distinguished achievements were accomplished on the other shore, their glory shone across the sea and illumined the pages of American Laryngology. We long ago added his name to those of our country's great sons whose life-path lead them away from home, but who, ever and anon, sent back to us glad tidings of well-doing.

There were those of us who were taught of this great teacher, and we count it to our fortune. He wrote little and spoke slowly, but when he did, the professional ear was attuned to hear.

Though Dr. Whistler was learned in all Laryngology, it is for his investigations in syphilitic and tubercular affections of the larynx that he will be best remembered. He contributed the article on Diseases of the Nose in Whane's Medical Dictionary, and for some time was the president of the British Rhinological, Laryngological and Otological Association, the most distinguished body of Oto-Laryngologists in the world. He was brother to the famous artist, an aristocrat by birth, tracing his genealogy of hundreds of years to honorable mention in the classics, but in himself he personified the truest of all aristocracy—the aristocracy of brains and character.

F. C. E.

BOOK REVIEW.

Diseases of the Nose and Throat. By J. PRICE-BROWN, M.B., L.R.C.P.E., Member of the College of Physicians and Surgeons of Ontario; Laryngologist to the Toronto Western Hospital; Laryngologist to the Protestant Orphans' Home; Fellow of the American Laryngological, Rhinological and Otological Society; Member of the British Medical Association, the Pan-American Medical Congress, the Canadian Medical Association, the Ontario Medical Association, etc., etc. Illustrated with 159 engravings, including 6 full-page color-plates and 9 color-cuts in the text, many of them original. 6¼x9¼ inches. Pages xvi—470. Extra cloth, $3.50, net. The F. A. Davis Co., Publishers, 1914-16 Cherry street, Philadelphia.

"As a practitioner who for nearly twenty years was engaged in general practice, and who for the last ten years devoted himself exclusively to nose and throat work, he has frequently been struck with small amount of knowledge possessed by the profession at large upon the diseases of these important organs."

In this preface the author emphasizes one of the special features which commends this volume to the consideration of the profession. With a ripe experience of twenty years' general practice preceding his special work in laryngology, the author is eminently qualified to present the results of his work.

We are impressed with the simplicity of arrangement, terse description and practicability of this book.

The author gives valid reasons for the omission of several chapters usually found in works of this class. Diseases of the frontal sinus, the lacrymal canal, diseases of the ear and asthma have been entirely omitted. Diphtheria is also excluded, and while the author is perhaps justified in his statement that "every medical journal can tell the latest with regard to this disease," still it must be considered that diphtheria is essentially and primarily an infection of the throat, and at least the question of diagnosis and pathology of the tissues here affected should be considered.

The illustrations are unusually clear and well selected, and the series of nine full-page colored plates of frozen sections of the head deserve special commendation.

Among recent works in this field this volume should be given prominent consideration, and both author and publisher are deserving of much commendation in the production of the book.

Encyklopædie Der Ohrenheilkunde. Edited by DR. LOUIS BLAU, of Berlin, with the collaboration of a large staff of European authorities in Otology. Large octavo. 452 pages. F. C. W. Vogel, Leipsig, Germany, publisher. American agents, Lemcke & Buechner, 812 Broadway, New York; also G. E. Stechert, 9 East Sixteenth street, New York. Bound in one-half morocco. Price, $5.75, postpaid.

The best endorsement of the advancement and progress of modern otology is the publication of an encyclopedia of this character devoted exclusively to the consideration of this special branch of medicine. In this volume of 450 double column pages are recorded in brief the progress of otological science. It is not a year book, contains but very few references to authors and their writings, but concerns itself essentially with comprehensive descriptions and definitions of every term used in otological science.